

COMMUNITY-LED DISMANTLING, RECYCLING AND REUSE OF CONSTRUCTION MATERIAL FEASIBILITY STUDY

Thai-Myanmar Border, The Border Consortium

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TABLE OF CONTENT

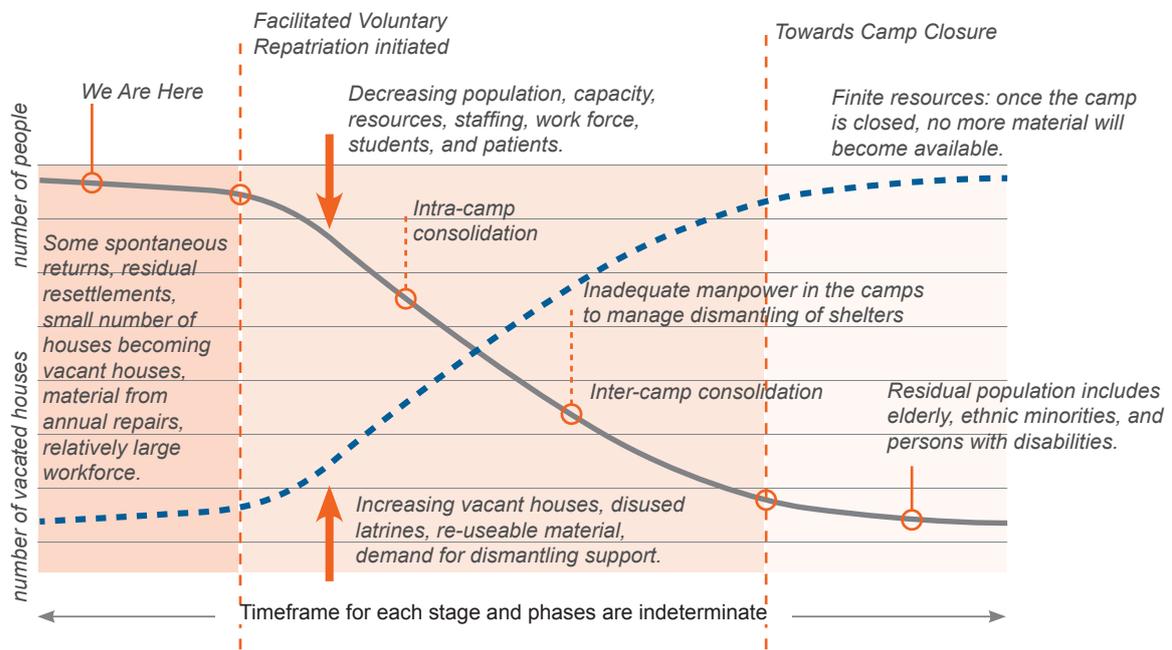
Executive Summary	4
1. INTRODUCTION	7
1.1 The changing context	
1.2 Objectives	
1.3 Methodologies	11
2. CURRENT TRENDS AND PRACTICES	
2.1 KRC and KnRC Housing Policy	
2.2 Policy In Practice	
2.3 Construction Waste Management	
2.4 Public Structures and Infrastructures	
3. SCENARIOS	17
3.1 At present	
3.2 Facilitated Voluntary Repatriation	
3.3 Towards Camp Closure	
4. MATERIAL	21
4.1 Material in Camps	
4.2 Material Management	
5. CONSTRUCTION WASTE MANAGEMENT	27
5.1 Alternatives to landfill	
5.2 Recycling Possibilities	
6. RECOMMENDATIONS	35
6.1 Overview	
Coordination and Planning Mechanism	
Camp Closure Planning (infrastructure)	
Dismantling and Construction Waste Management	
Settlement Planning	
Rehabilitation	
REFERENCE	43
ANNEX A: Meeting Notes	

EXECUTIVE SUMMARY

The nine camps along Thailand-Myanmar border currently hosts over 103,000 people, living in 20,112 self-built houses¹ across four provinces of Ratchaburi, Kanchanaburi, Tak and Mae Hong Son. The camps are also composed of hundreds of community buildings such as offices, schools health facilities as well as infrastructures such as roads, water pipes, and washing areas.

At present, most of the shelter waste material comes from annual repairs, with small number of houses being dismantled which are being managed by Section's Committees and Shelter Working Groups. As UNCHR's Facilitated Voluntary Repatriation process is initiated and gains momentum, however, population will decrease at a faster pace, as will resources and capacity. The number of vacant houses and disused latrines will increase as will the waste shelter material and demand for manpower for dismantling.

At present, there is no formal plan from the Thai government as to camp closure preparation and procedures or rehabilitation. In principle, MOI will ensure that the land is rehabilitated before it is handed over to the other government departments, local authority or landowners.



The chart showing projection on a possible pathway following successful Facilitated Voluntary Repatriation. As the population decreases, so do the resources and capacity; the number of vacant houses will increase as will the used shelter material and demand for manpower for dismantling.

Dismantling and Construction Waste Management

On-going construction waste management is a major contribution towards fire risk reduction in the camps, management of used material have long been providing additional resources to households. Options for material management will range from re-use to full demolition and will likely be implemented in combinations, and should be included in camp closure plans.

Interests around recycling in the camp were not as high as might have been expected

- Common practices are for reusing rather than processing of waste material for further use.
- More interests were shown for trainings and learning about these recycling techniques and technologies with the view towards income generation post repatriation.
- The finite nature of these raw materials for recycling also means that investment will likely loses its return as soon as the camps close.
- Transport of material outside the camps for processing will render it too expensive
- Quality of recycle products will likely be poor and will not provide adequate returns commercially or compete with other income generating opportunities.
- Little value is placed in material like bamboo and thatches outside of the camps.

Recycling should be introduced for capacity building purposes as preparation to returns, even though interests for implementation in the camp were low both in and outside of camps.

It is also apparent that consideration for dismantling, re-use and re-cycling of shelters must be done within the framework of camp closure preparedness and planning. The following set of recommendations draws out a process that approaches the question of dismantling and recycling of shelter material from a much broader perspective of **Natural Resource Management, Return Preparedness and Camp Closure Preparedness**.

These recommendations should be seen to feed into Camp Consolidation, Decommissioning and Environmental Rehabilitation plan as part of UNHCR's Operational Procedures for the Facilitated Voluntary Repatriation of Myanmar Refugees in Thailand.

Coordination and Planning Mechanism for Camp Closure

In order to establish common vision, strategy and plans within the camps, it is vital that there is a

- Dedicated multi-Sector and multi-agency platform for discussions on policies and directions on resource management, returns and camp closure.
- Engagement with Thai Authorities and Thai villages are key in ensuring sustainable integration towards camp closure and rehabilitation
- Engagement with NGOs and CBOs, taking on responsibilities regarding community structures, as well as engaging more in multi-agencies initiatives within the camps.

This can be based on the CDNRM Collaborative Management Committee or set up as standing agendas for existing camps' general coordination meeting, making sure Thai villagers are also invited when the agenda is due for discussion.

Information Management

Accurate and timely information is vital for all areas of planning and implementation. Overall information management should remain hosted by camp committees and working groups. It is important to strengthen and increase capacity for information management in preparation for increase demand and workload.

Information Management activities can include, but not limited to:

- Housing Management System
- Mapping
- Inventory of assets for community structure and infrastructure.

Camp Closure Planning (Infrastructure)

Each camp will need to formulate its own camp closure plan and identify key relevant stakeholders, within the framework of UNHCR's Operational Procedure for the Facilitated Voluntary Repatriation of Myanmar refugees in Thailand. This recommendation focuses on the infrastructure component and should feed into the Operational Procedures for facilitated voluntary repatriation.

The planning process should:

- Be participatory and collaborative as per the camps' practices
- Ensure common understanding on roles and responsibilities amongst all stakeholders.
- Established upon clear indicators and trigger points for activation of each stage
- Include plans for the following recommendations: dismantling, settlement planning and rehabilitation

Challenges:

- Clarity on rehabilitation plans from Thai government may not be available until the camps are closed.

Settlement Planning

As the population decrease in the camps, settlement planning will be vital in ensuring that:

- Camps residents continue to have access to key services
- Improve quality of life for those still living inside by
- Maximising available resources and
- Ensuring that vulnerable families are part of the decision making process.
- Consolidation process contributes towards rehabilitation, initiates setting up of zoning such as green zones and recreational areas.

Participatory settlement planning process will also help build capacity for their eventual returns.

Most of the discussion around consolidation currently focuses around consolidation of common services and facilities. As camp population decrease further, population consolidation to cluster around common facilities may also be needed in order to afford the same level of care and services.

Challenges:

- Lack of resources to carry out consolidation plans
- After a certain period of facilitated returns, there will not be enough manpower in the camps to carry out and support consolidation.

Rehabilitation

For many of the camps, this will be a natural progression from Community-Driven Natural Resource Management, rather than setting up of a new committee. It is important to recognise that rehabilitation process can start at any time.

A holistic, full-circle approach to parts of rehabilitation can:

- Offer opportunities for camp residents to participate in rehabilitation process of their own camps can be beneficial in learning about natural resource management in preparation for returns.
- Improve relationship with Forestry Departments, local authorities and local villages

Unless otherwise stated, planning assumption should be that MOI's will return the land to its original condition prior to handing over back to its owner.

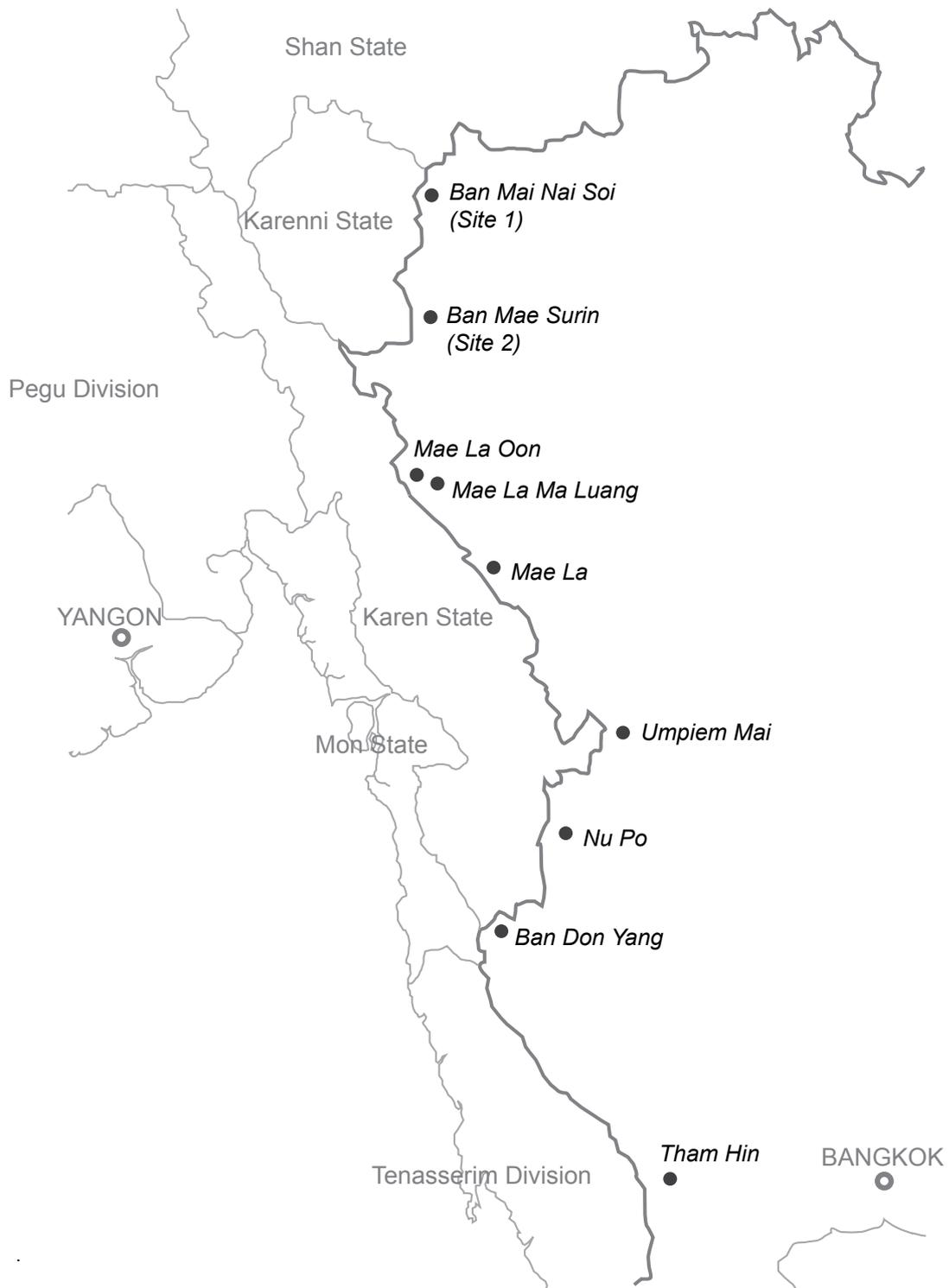
Challenges:

- Getting engagement and traction from local Thai villages in camps where CDNRM Collaborative management committee is not already active. Villages that do not share watershed with the camps will be less likely to participate.

1 INTRODUCTION

“...2016 is the first time the number of people to have resettled in third countries is higher than the current camps’ population.”



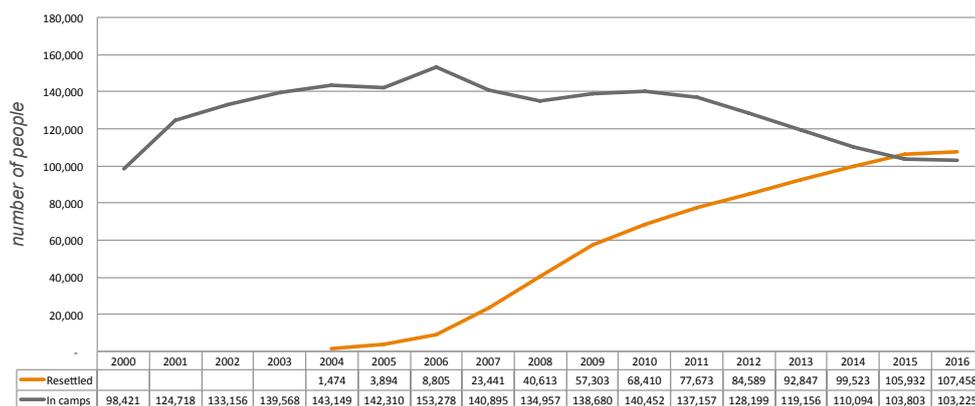


*Location of nine refugee camps along Thai-Myanmar border
Not to scale*

1.1 The changing context

The nine camps along Thailand-Myanmar border currently hosts over 103,000 people, living in 20,112 self-built houses¹ across four provinces of Ratchaburi, Kanchanaburi, Tak and Mae Hong Son. The camps are also composed of hundreds of community buildings such as offices, schools health facilities as well as infrastructures such as roads, water pipes, and washing areas.

Resettlement programs that started in 2004 have provided assistance to over 107,000 people to migrate to third countries². Group resettlement programs to the US, it's largest recipient (~75%), have now closed and the number of those departing the camp for resettlement is rapidly decreasing. The year 2016 is the first time the number of people that have resettled in third countries is higher than the current camps' population.



Annual camps' population from 2000 to May 2016 (TBC), Total cumulative number of population resettled (IOM)

Towards Facilitated Returns

The changing situation in Myanmar, particularly National Ceasefire Agreement (NCA) and general election held earlier this year, have increased expectations for spontaneous returns from refugee camps in Thailand back to Myanmar. The Royal Thai Government (RTG) and the Republic of Union of Myanmar (RoUM) are both committed to supporting voluntary repatriation in line with the international standards and humanitarian principles with the support and coordination of UNHCR³. Time frame for establishment of the SOPs and implementation, however, remain uncertain.

The reduction in funding experienced by most agencies working in these camps have resulted in reduced rations, support, staff. In addition, announcements made by the interim military Government in Thailand regarding its intention to close the camps will likely contribute towards increase returns despite unclear and unstable situations across the border.

Resettlement vs. Spontaneous Returns

While process and procedures for resettlement have been well established and compulsory, formal procedures are still under discussion between UNHCR and the community. Some refugees have spontaneously returned to Myanmar based on their own understanding of the situation and available opportunities.

- Section committees and camp committees often become aware of returns only after the fact⁴.
- People are afraid to formalise their returns and lose their place in the camps as situations remain unstable across the border.
- Partial returns are taking place where some family members stay behind to allow the others, often men, to return and start up agricultural activities and search out opportunities
- Lack of key infrastructures across the border such as schools and health facilities can potentially cause partial return and/or re-entry into the camps.

As the result, information regarding returns is also sporadic and difficult to pin down, making

management of these processes and regulations harder to establish. KRC and KnRC's efforts to establish their housing policy and establish the housing management system will help address these gaps.

1.2 Objectives

In relationship to the overall rehabilitation framework, this feasibility study aims to:

1. To take stock of overall buildings and construction material that will be made available upon group returns and/or camp closure.
2. To explore appropriate technologies and locally available expertise in material recycling and waste management.
3. To propose feasible, community-led dismantling, recycling or re-use plan for all reclaimed materials and construction waste with specific focus on income opportunities and sustainability.

This study also keeps in mind that key factors effecting the decision making process will also include:

- Fire risk, prevention, and safety
- Maximisation of resources
- Preparation towards facilitated return, camp closure and rehabilitation

1.3 Methodologies

Data collection and field visits for this report were carried out between 25th April and 26th May, and were composed of three main methodologies:

1. Desktop Review: was carried out with documents provided by TBC
2. Visits and meetings with experts in material technology and alternative energy
3. Interview, Focus Group Discussions and Meetings with key stakeholders

Meetings with stakeholders generally cover these main topics, not necessarily in this order:

- Trends on population movement
 - For returns, resettlement, and any other types of movements
 - Decision making process when a house becomes empty - Who, What, How, When and Where
- Practice on managing waste material as the result of repairs and dismantled houses
 - How are each material dealt with once removed from the house?
 - Who manages the process?
- Introducing ideas of re-cycling waste construction material,
 - Suggesting a few ideas like charcoal and compost making
 - What other technologies are known within the communities?
 - What has been tried and tested before? What did and didn't work?
 - Would this be of interest? If so, who and how would such a process be managed?
- Future plans (Local authorities)
 - Are there pre-existing plan on what to do following camp closure?
 - What roles would the relevant local authorities be expecting to carry out in the process?

Notes of these meetings can be found in Appendix A.

¹ TBC Monthly population Report, March 2016 and TBC Housing Assessment, November 2015

² IOM, Assisted Departures from Thailand (Burmese Refugees) statistics, as of 30 April 2016

³ UNCHR, Strategic Roadmap for Voluntary Repatriation, updated January 2016

⁴ Meeting Notes: Tham Hin Camp Committee, 27 April 2016; KRC, 9 May 2016; Mae La Camp Committee, 10 May 2016

2 CURRENT POLICIES & PRACTICES

“TBC, together with KRC and KnRC, have been working with communities to develop the Housing Policy that can be implemented by the communities and would be suitable for different contexts and environments”

-- TBC, Nupo CDNRM multi-stakeholder meeting, May 2016



2.1 KRC and KnRC Housing Policy

Drafted in May 2014 for consultation, the Housing Policy has been incrementally introduced and implemented in the camps throughout the border. Below are summary of key policies related to this study.



1 household = 1 house = 1 housing record

Housing record = right to occupy the house, ownership of the material used to build the house, but not ownership of the plot the house is built on.

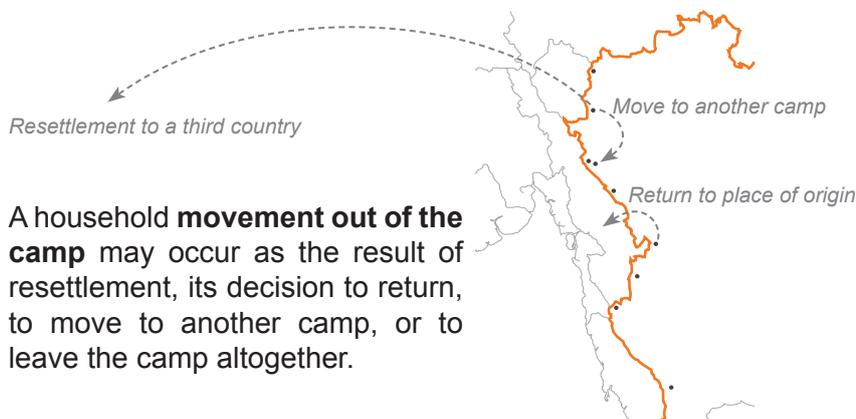
Houses cannot be used for collateral for borrowing money or any other services and goods.

“It is not permitted to sell plots of land located within the camps.”

Houses must be maintained in safe and adequate conditions

Households are ultimately responsible for disposing of construction waste from annual housing repairs, mitigating fire risk, and ensuring presence of fire fighting equipment.

Movements



A household **movement out of the camp** may occur as the result of resettlement, its decision to return, to move to another camp, or to leave the camp altogether.

A household **movement within the camp** may come as the result of changes to family status or situation such as an expansion after marriage or consolidation following an illness, returns or resettlements.

1 month notice to Section Shelter Working Group prior to movements

A strong reason for moving must be provided.

Emergency or protection cases are exempt from notice period or permission requests.

Houses that remain uninhabited for a period of 6 months or longer are treated as vacant

Once classed as 'vacant', the house can be re-allocated to households that have urgent shelter needs by the camp committee and respective section shelter working group; or dismantled if a suitable household cannot be found or the house is deemed inhabitable or presents a fire risk. In practice most camps may wait 1-3 months before classing a house as vacant.

The housing policy is being reviewed to reflect this practice at the time of writing this report.

2.2 Policy In Practice

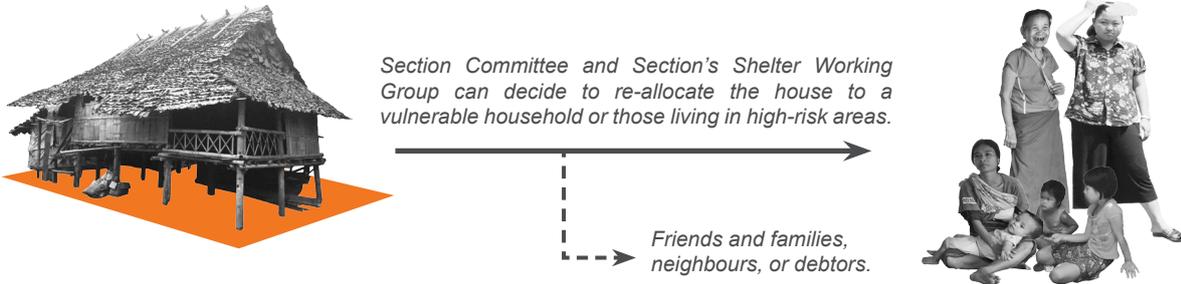
In practice, most camps loosely follow the Housing Policy. Below are some of the key points where practices deviated from stated policies.

While **no sale of houses or land** are occurring in the camps, all stakeholders interviewed admitted that in practice many **houses were used as collateral for loans to cover expenses** prior to resettlements or returns. The houses are simply handed over as repayment upon departure from the camp¹. Sales of material following a distribution also occur, often to pay off debts from previous housing upgrades.

Most camp committees agreed that the **6-months waiting period is often disregarded**. This is because the house will become a fire risk, or its condition will deteriorate too much for habitation.

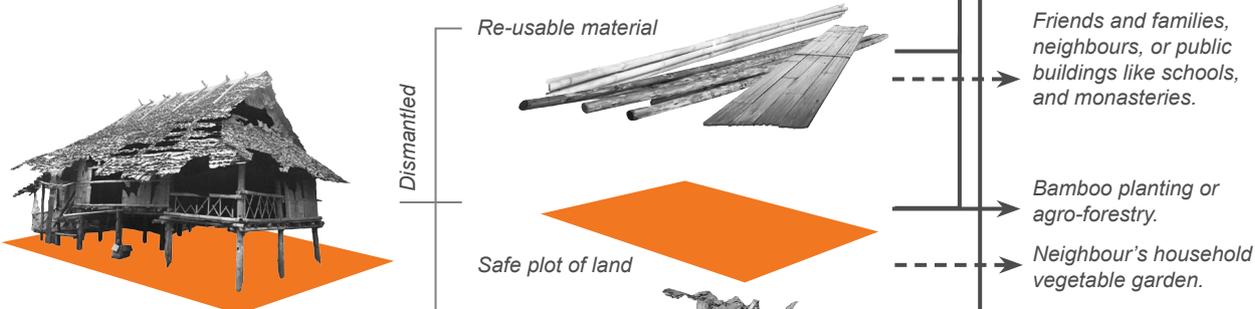
Management of vacant houses generally fall into these three categories, (dotted lines marks a common practice not in line with the policy):

1. The house is in good condition and the plot is in safe area



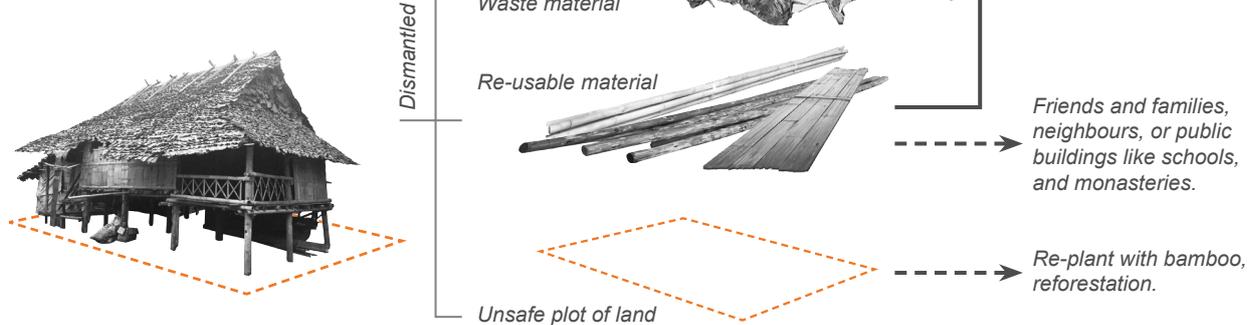
2. The house is in poor condition but the plot is in safe area

The house will be dismantled.



3. The plot is in high-risk area

The house will be dismantled regardless of its condition.



Many households of persons with disabilities have benefited from these policies and have been supported to move closer to common facilities and infrastructures.

2.3 Construction-Waste Management

In general, waste management is carried out by WASH agencies working within each camp, including management of household construction waste. There are slight variations, but generally collection points are available within each section and collection schedule is made aware to all camp residents. The waste are taken outside of the camp for treatment, landfill, or incineration. During annual repair season (January – April), however, some larger camps often require contribution from all agencies to support waste disposal, particularly for leaf thatch, as it poses to heighten fire risk if kept inside the camp.

Case Study: Mae La leaf-thatch shredding

Fire risk is a major concern for a camp of Mae La's size and density. Management of annual roof thatch disposal is a priority for the Camp Commander as well as relevant agencies. The process has started with each household burning their own used thatches, sometimes on their agricultural plots as fertiliser. This was later banned and the thatches were collected and trucked outside the camp for burning. This year (2016), the camp commander has prohibited burning of thatches altogether.



In response, TBC has brought in agricultural shredder to manage the used thatches. The shredded thatches are being successfully used directly in community agricultural gardens, for composting, and mushroom farming.

Key challenges faced this first year included:

- Efficient and timely transport requires coordination amongst many agencies, and support of some supplier. Used thatches do not pack easily and create large, awkward bulks for transport, requiring more resources in this regards than might have been expected.
- Safe use of machineries.
- Number of machines and capacities will need to take the volume and rate of waste production into consideration in order to maintain timely processing.

At the household level, used construction materials such as bamboo and eucalyptus are often re-used again and again in different parts of the house, from flooring to walls, to fencing to garden stakes, until it is no longer viable. These are then stored for use as firewood, taken to section collection points, or burned in the agricultural plots as fertiliser.

2.4 Community Structures and Infrastructure

“All buildings must have a house record”

“Community Buildings, shops, NGO/CBO buildings will name the camp committee or operating CBOs and NGOs responsible for the structure on the house record.”

-- KRC and KnRC Housing Policy

Unfortunately, public structures currently on the housing registry are mainly those being supported by TBC for shelter material, though KRC and KnRC are working to expand the registry to include other buildings. There are currently no border-wide policy around dismantling and decommissioning of community structures.

As the population in the camps decreases, the challenge faced by many of the NGOs is to adapt to these changes, maintaining services as efficiently and effectively as possible. During this transition phase, there are generally 3 approaches that will likely be considered by responsible NGOs to manage this process: **consolidation**, **decommission** or **retention**.

1. Consolidation: this refers to consolidation of services within a camp, where the number of users has fallen to the point of no longer being cost effective. In some cases, geographical constraints may become the prohibiting factor for consolidation.



Case study: School consolidation in Site 1 and Challenges for replication in Site 2²

Numbers of enrolled students in both Site 1 and Site 2 have been steadily decreasing over the past few years. In Site 1, JRS has consolidated two schools as the result, transferring more than one hundred students from Primary-2 to Secondary-2. Dismantling and re-building were carried out with the help of parents while JRS supported with lunch. Dismantled materials from Primary-2 were used to construct 3 new buildings on the site of Secondary-2. KnED is considering re-allocating the land or Primary-2 for vocational trainings purposes.

There is also a steady decrease of students in Site 2 but settlement is more spread out and the landscape challenging for small children to commute. This forces JRS to maintain all their supported schools in Site 2 as is.

Most of the discussion around consolidation focuses around consolidation of common services and facilities. As camp population decrease further, population consolidation to cluster around common facilities may also be needed in order to afford the same level of care and services.

2. Decommission and Dismantle: when a facility becomes disused and need to be safely decommissioned and/or dismantled to ensure safety and security in the camp. This applies to common facilities that may serve small cluster of houses, such as communal toilets, washing areas, and so on, and will need to be tackled on an on-going basis.



Case Study: Mae La decommissioning of 50 disused latrines

Solidarities International (SI) is currently implementing a project to decommission 50 old and disused communal latrines in Mae La. Adhering to international standards, SI plans to use existing pits for disposing of concrete components, which will then be covered by soil for tree planning. The squat plates will be taken away for re-use, where possible.

So far 27 latrines have been identified, but the challenge is that disused latrines are often turned into garbage pits by households, and may need to be cleaned out before decommissioning can start.

SI last carried out a sanitation mapping in 2012, which forms a good base of information for planning purposes for the WASH sector regarding dismantling and decommissioning of WASH infrastructure.

3. Retention: this applies to services and structures that must be maintained until after camp closure, such as health posts, key offices, road and water supply infrastructures.

For some, such as health facilities and treatment centres, special consideration will be required for dismantling and decommissioning. In some cases, this will be only be possible once the camps have closed and no resident remain.

In all cases, donors will need to be consulted prior to making these decisions. In a lot of cases, the inventories inside the buildings will be of more values than the structure themselves to both returnees and local Thai Villages and authorities.

¹ Meeting Notes: Mae Sariang CDNRM multi-stakeholders meeting, 17 May 2016; Mae Hong Son Camp Committees & KnRC, 18 May 2016

² Meeting Notes: Site 1&2 NGOs, 18 May 2016

3 SCENARIOS

“At present there is no formal policy from the Thai government as to camp closure procedures and rehabilitation plans.”



3.1 At present

UNHCR estimated that, as of January this year, more than 1,300 people have spontaneously returned from the camps on Thailand's border since 2012¹. This is in addition to the number of people leaving camps for resettlement in third countries. In Nupo, a camp of 11,500 people², this translates to roughly 1-2 shelters per section per month that need to be dismantled³. Majority of shelter waste material comes from annual repair.

At present, most of the shelter waste material comes from annual repairs, with small number of houses being dismantled. The Section's Committees and Shelter Working Groups in all camps appear to have enough capacity to manage shelter dismantling, as well as supporting rebuild or upgrade of shelters for the vulnerable households moving into these houses and plots of land. They have also been in charge of the housing stock data management since April 2016, the record of which are updated every 2 months.

As funding for support within the camps have been decreasing and more of the support has been focused around capacity building, more and more responsibilities and time are also being required from the various committees and working groups.

Many families are reportedly moving between the camps and their place of origin. Some households have partially returned, allowing children to remain in schools while some, mostly men, return to initiate agricultural activities and find income generating opportunities. Access to key services in place of origin remains particularly low for market, middle school, high school and health facilities. Priority needs for returnees, however, are currently shelter, food, livelihood, and water points⁴.

3.2 Facilitated Voluntary Repatriation

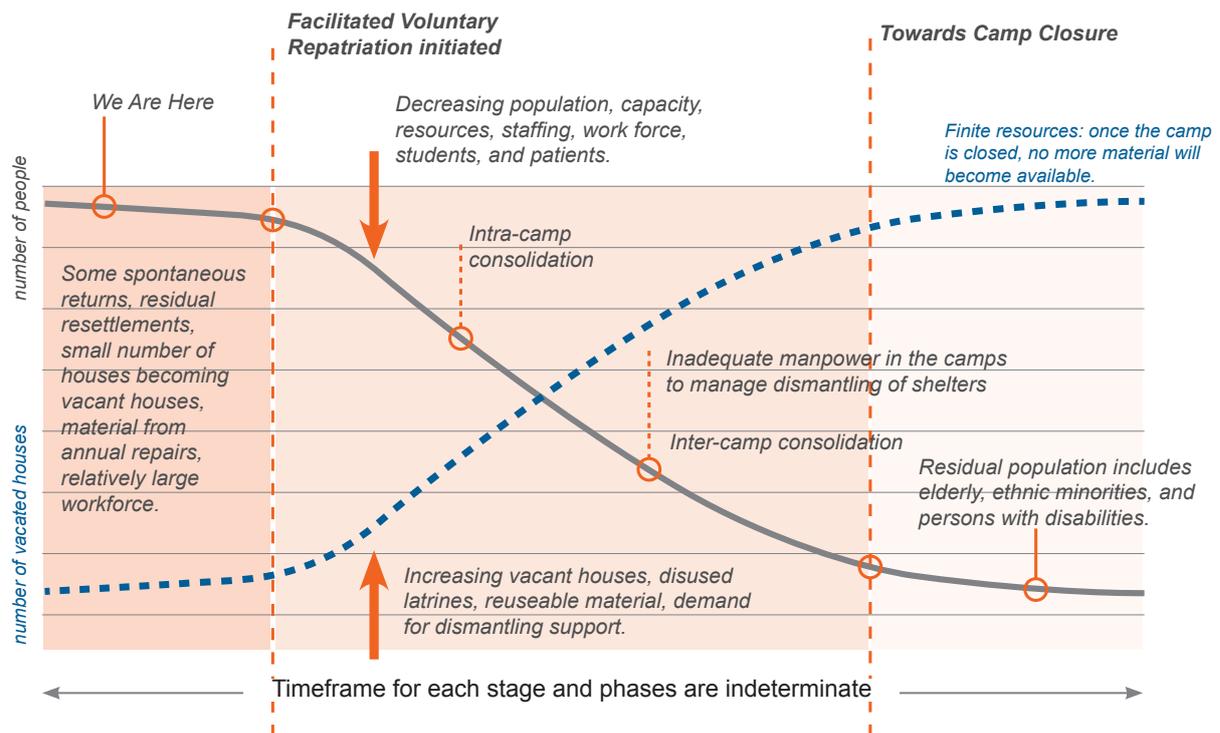
UNHCR is in the process of consultations with the governments of Thailand and Myanmar, as well as humanitarian organizations, to draft SOPs for Facilitated Voluntary Repatriation of Myanmar Refugees in Thailand. It will advocate for a "tri-partite Agreement with the Myanmar and Thailand governments that will set out the legal framework and modalities of a promoted voluntary repatriation operation", carry out assessments of the situation back in their places of origin, registration of a refugee's intent to return, as well as ensuring voluntariness of those returning. It is estimated that more than 10,000 people have spontaneously returned in recent years⁵. The timeline and timeframe for facilitated repatriation program will vary from camp to camp, Site 1 and Site 2 has reportedly interviewed 55 people to initiate facilitated return⁶.

As the Facilitated Repatriation process gains momentum, population will decrease at a faster pace, as will resources and capacity. The number of vacant houses and disused latrines will increase as will the waste shelter material and demand for manpower for dismantling.

It is likely that various levels of consolidation of common facilities such as schools will need to occur in order to maximize available resources. As camp population decrease further, population consolidation to cluster around common facilities may also be needed in order to afford the same level of care and services.

At present

Facilitated Voluntary Repatriation



The chart showing projection on a possible pathway following successful Facilitated Voluntary Repatriation. As the population decreases, so do the resources and capacity; the number of vacant houses will increase as will the used shelter material and demand for manpower for dismantling.

3.3 Towards Camp Closure and Rehabilitation

Towards Camp Closure

At present there is no formal policy from the Thai government as to camp closure preparation and procedures or rehabilitation plans. It is possible that this will not be issued until the camps are fully vacated. In principle, MOI will be required to return the land to its original condition before turning them to the landowners, though in practice this may depend on plans the Thai government may have for the land. It is expected that all shelters will need to be dismantled, however, some community structures might be kept standing depending on the plans of the assigned Royal Thai Government department.

Residual population: For various reasons, it is most likely that there will be residents who are unable to return to Myanmar at the time of camp closure. This group can include those deemed 'unfit to travel' following their pre-departure medical screening⁷ and may also include ethnic minorities, elderly and people with disabilities⁸.

¹ UNHCR, Return Assessment, January 2016

² TBC Monthly population Report, March 2016

³ Meeting Notes: Umpiem Camp Committee, 25 May 2016

⁴ UNHCR, Return Assessments, Jan 2016

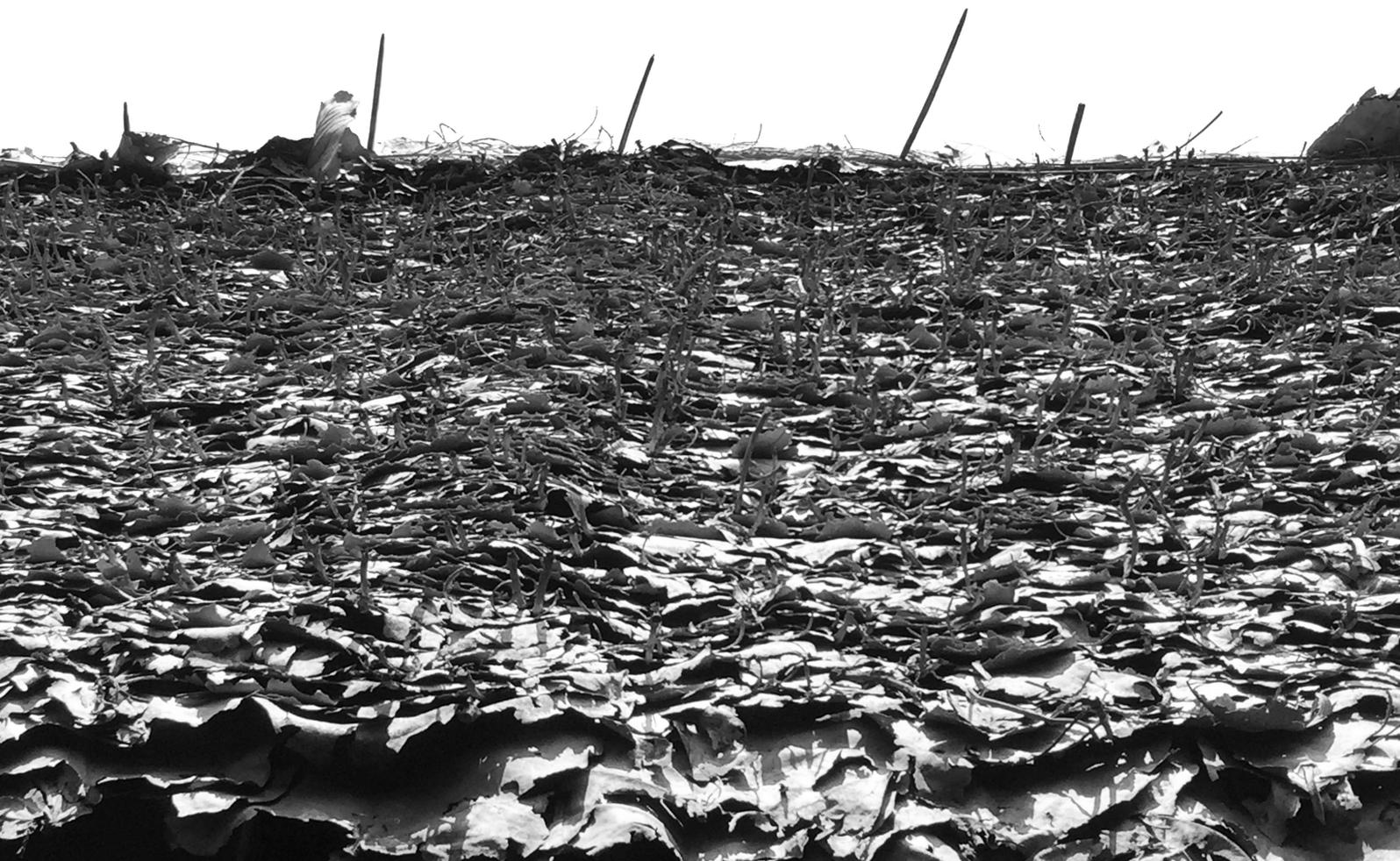
^{5,7} UNCHR, Strategic Roadmap for Voluntary Repatriation, updated January 2016

⁶ Meeting Notes: Site 1&2 NGOs, 18 May 2016

⁸ From field visits and discussions with households in the camps, April-May 2016

4 MATERIAL

“For 2016, more than 4 million leaf thatches have been requested for annual shelter repairs.... This means TBC and WASH agencies have had to dispose of similar amount of used thatches this year.”



PROVINCE	Mae Hong Son						Mae Sot	Umpang		Karnchanaburi		Ratchaburi	TOTAL
	Baan Mai Nai Soi	Baan Mae Surin	Mae La Oon	Mae Ra Ma Luang	Mae La	Mae La		Umpliem	Nupo	Don Yang	Tham Hin		
CAMP	MNS (Site 1)	MS (site 2)	MLO	MRML	ML	UM	NP	DY	TH				
Alternate Name													

DEMOGRAPHIC													
Population (March 2016)	10,782	2,599	9,841	11,158	38,116	11,540	10,547	2,846	6,383				103,812
Special Shelter need	89	22	60	124	280	129	84	33	72				893

HOUSES													
No. of houses	2,314	483	1,796	2,019	6,983	2,422	2,253	576	1,266				20,112
Est. Total house area (sq.m)	82,142	60,194	52,483	276,325	88,114	70,548	16,140	27,159	673,105				3,289
Houses with 2 storeys	64	7	16	11	2,048	251	173	36	683				813,340
Est. Total Floor Area (sq.m)	84,841	16,422	60,838	52,938	364,050	78,948	96,774	17,140	41,389				40
Average Floor Area (sq.m)	37	34	34	26	52	33	43	30	33				

MATERIAL IN CAMP ESTIMATION													
Eucalyptus (~6m)	93,325	18,064	66,922	58,232	400,455	86,843	106,451	18,854	45,528				894,674
Bamboo	593,887	114,954	425,866	370,566	2,548,350	552,636	677,418	119,980	289,723				5,693,380
Leaf thatch	1,272,615	246,330	912,570	794,070	5,460,750	1,184,220	1,451,610	257,100					12,200,100
Grass thatch													

MATERIAL REPAIR (2016 request)													
Eucalyptus (~6m)	5,164	221	503	-	9,689	4,782	2,661	-	5,642				28,662
Bamboo	45,181	6,765	16,375	18,530	174,120	50,729	44,784	20,498	24,908				401,890
Leaf thatch	690,500	89,500	411,625	430,750	1,674,150	182,956	667,750	-	-				4,147,231
Grass Thatch	-	-	-	-	-	-	-	90,580	-				90,580

Sources:
TBC Monthly Population Report - March 2016
TBC Housing Assessment, November 2015
Material Estimation per sq.m.: 0.4 Euca (L), 0.7 Euca (S), 7 bamboo, 15 leaf thatch Note: Baan Mae Surin had no estimation of house areas and so calculation was made based on estimate of 50% small houses (28sq.m.) and 50% large houses (40sq.m.)

4.1 MATERIAL IN CAMPS

The nine temporary refugee camps along Thai-Myanmar border are currently hosting over 103,812 people¹, living in over 20,112 houses².

Most of these houses are constructed from natural, re-useable and biodegradable material like bamboo, eucalyptus and leaf thatches. A conservative estimation places the following amount of shelter material spread out across the nine camps:

- Nearly 900,000 eucalyptus poles,
- More than 5.6 million bamboo poles, and
- Over 12 million leaf thatches.

These figures do not currently include hundreds of public buildings and infrastructures.

The table on the left shows breakdown of population, number of houses, as well as material estimation and annual repair requirement per camp.

For 2016, more than 4 million leaf thatches and 90,000 grass thatches have been requested for annual shelter repairs, with an additional 73,000 for community buildings being supported by TBC. Unlike bamboo (400,000 requested), leaf thatches do not get re-used after it is dismantled from a house and poses a challenge for waste management as dried out thatches next to the houses poses a great fire risk for the families. This means TBC and WASH agencies have had to dispose of similar amount of used thatches this year, all within a 3-month time frame. Once used and dismantled, leaf thatches do not pack easily for transport and take up significantly more volume than before, making transport of these used thatches costly and challenging.

Over the years, more and more permanent construction materials have also been making its presence in the camps. This is mostly done to ensure durability of public structures, but it's also sometimes endorsed for use as a mean to reduce and minimize fire risk. These materials include concrete, plastics and metal.

In order to have a better understanding on waste shelter material management possibilities, materials are also categorized based on their re-use and recycle capacity, and common disposal practices. The summary table also broadly group these materials into 4 groups: re-useable, re-saleable, throwaways, and demolish.

Re-useable Material is divided into 2 types:

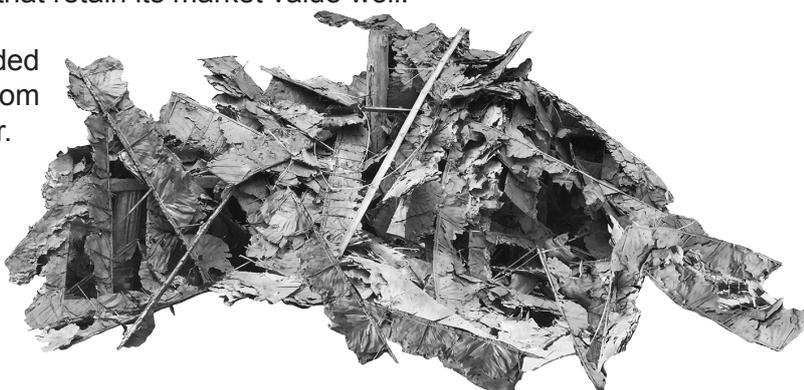
Re-useable natural materials get down-cycled every time it is reused over and over again in the house for different applications. The materials get used until they are no longer viable and become throwaways or firewood.

Re-useable manufactured materials last longer and will be used, more or less, in its original form. When it can no longer function, it is thrown away into landfill.

Re-saleable these are re-useable material that retain its market value well.

Throwaways: materials are being discarded right after they have been dismantled from either an empty house or from annual repair.

Demolish: materials that require demolishing or heavy machinery to dismantle, and after which they are most likely not a viable material anymore for re-use or recycle.



NATURAL MATERIAL

Eucalyptus

Eucalyptus provided by TBC are 5" and 4" in diameter and 6m long. Most commonly used as support columns in shelter construction, they are used uncut and go directly into the ground, becoming one of the weakest links in the structure. The direct contact with the soil and moisture means that these poles generally last only one to three years.

When a column starts to rot away at its contact point with the ground and/or eaten up by termites, it is replaced and cut down for use as other components of the house such as support for entry steps.

Sometimes attempts are made to protect the poles by painting the bottom with used motor oil, or by wrapping it with plastic bag before putting into the ground. These tend to have mixed results and as yet not common practices.

Bamboo

Bamboo provided by TBC comes in 3" and 2" in diameter and 6m long. Bamboo are generally used to make walls, flooring, posts and beams. In general, bamboo in the camps are used in three forms: poles, battens or woven panels.

How long a bamboo will last depends on its quality, harvest period and treatments. New treatment (borax) programs in the camps are expected to prolong their lives from 2-3 years to 6-10 years.

Grass or Leaf Thatch

Leaf or grass thatch are used for roof cover depending on availability of raw materials in the area. A small house in the camps uses around 400 thatches, and a large house requires roughly 500. Many households also make their own thatches to supplement TBC's distribution.

Thatches generally last 1-3 years and can be repaired in sections.

These material enters the camp's waste management system (landfill or incinerated) or it is burned on household's agricultural plots for fertiliser.

Throwaways

Unrolled bamboo battens



Woven bamboo panels



Grass thatch



Leaf thatch



Re-Use

Whole section eucalyptus posts



Whole section bamboo posts



These material will get re-used again and again within the household through downsizing and re-purposing (from support post to stairs to fencing), before finally getting thrown away.

MANUFACTURED MATERIAL

Concrete

Concrete is used mostly in community buildings such as schools and offices, as well as roads and water points.

TBC has also been providing trainings for casting concrete footings for houses, and this is present in some houses.

Both in-situ and prefabricated concrete are seen throughout the nine camps, and each has varying capacity for potential re-use and recycling.

Metal

Metal is one of few permanent construction material seen in the camps. Used mostly by aid agencies for the construction of common facilities, services and offices.

The most common forms of metal used in the camps are corrugated galvanised iron sheets (CGI), and wire mesh fence.

Plastic

The most common use of plastic products in the camps are in WASH facilities and infrastructure.

Additionally, plastic sheeting (tarpaulin) is used as roofing in Tham Hin as roof thatch has been forbidden due to fire risk.

These material will get re-used after dismantling in its original form. They are also of higher value and will likely be taken with the families upon their returns.

Re-Use

Concrete posts



Corrugated Iron Sheets



Tarpaulins



Concrete hollow blocks



Wire mesh fence



Plastic water storage



Concrete screed used on flooring and hand-washing station



Re-sale

Material with adequate re-sale value, easy to transport.

Demolish

These material cannot be re-used after dismantling and will need to be demolished, some may require heavy Machinery.

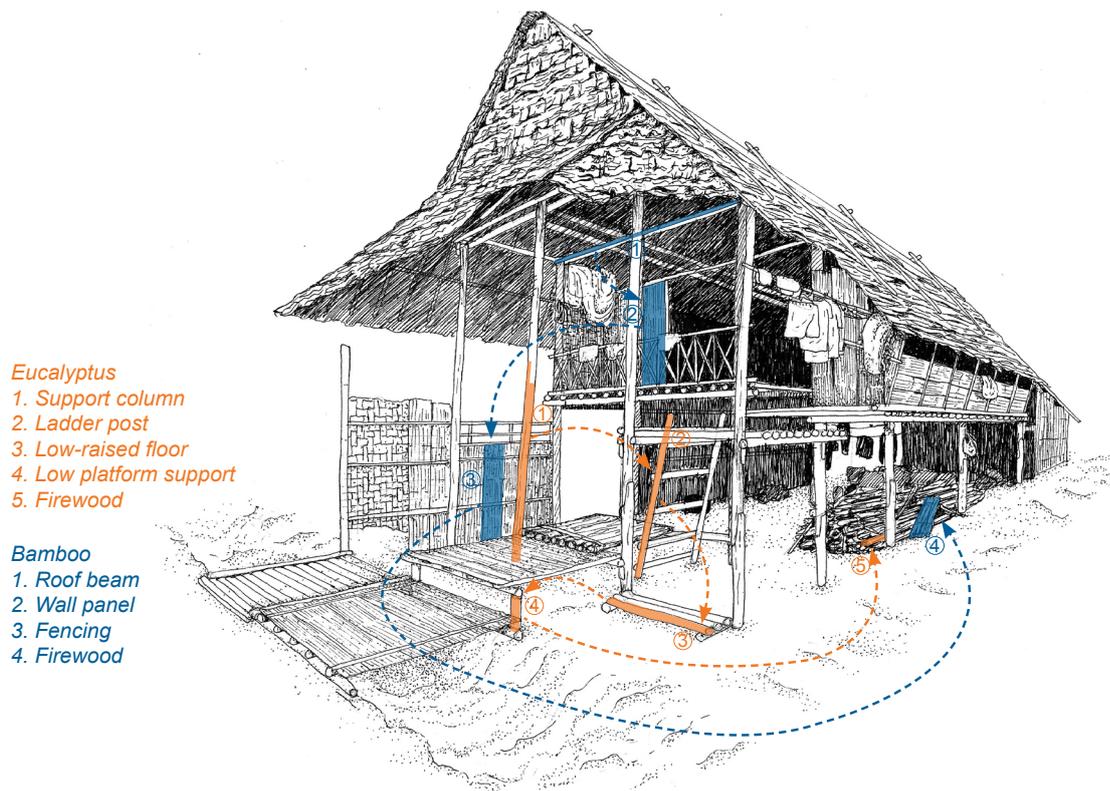
Crushed concrete is sometimes be used for road's sub-layers.

PVC water pipe



4.2 MATERIAL MANAGEMENT

For **re-useable natural material** like bamboo and eucalyptus, direct 're-use' will likely be a preferred option in the camps than an attempt to 'recycle'. This is particularly true for the current phase, where the volume of dismantled or discarded materials are neither high nor consistent enough for bulk processing. Re-using simply requires no additional effort or resources from outside of the camp, and the whole process can be managed within sections and households. There were very little interests shown by Thai villages met in Nupo and Mae Hong Son for access to these materials.



A diagram showing possible path of down-cycle throughout the house before being stored for use as fire wood.

Re-useable manufactured materials, on the other hand, would be of more interests to Thai villages near and around the camps. Those in Nupo went as far as being willing to consider support dismantling of community buildings in the camp in exchange for taking these materials. It is expected that if such materials were used in family shelters, it will likely be taken with them upon their returns, or sold to other families prior to their resettlements.

Moving towards **planning and preparedness for camp closure**, plans for permanent structures will depend largely on donors' discretion for community assets as well as Thai government's policy and plan for these land. Infrastructure such as roads and water supply and storage facilities can be useful, whether in-situ or for use in the Thai villages around the camps. The same is also true for other built community structures such as health facilities, warehouses, and schools where geographical proximity permits. It is also important to note that bringing in heavy machineries for demolition in the more remote camps will be both costly and time-consuming.

¹ TBC Monthly population Report, March 2016

² TBC Housing Assessment, November 2015

5 CONSTRUCTION WASTE MANAGEMENT

“...one of the key challenges at present is that materials with potentials for recycling get re-used many times in the households before they are discarded, providing a raw material of poor quality for further processing.”



5.1 ALTERNATIVES TO LANDFILL

Re-Use:

Re-use is already widely practiced in the camps and should be encouraged as it is already a very effective way of managing construction waste.

Alternative Technologies & Recycling:

In considering possible methods and technology for recycling shelter material in the camps, one of the key challenges at present is that materials with potentials for recycling get re-used many times in the households before they are discarded, providing a raw material of poor quality for further processing. As such, the alternative possibilities looked at in this study focused largely on material in 'Throwaway' category such as grass and leaf thatches that are abundant in quantity from annual repairs, poses handling problem and increase fire risk in the camps. Summary and information for these technologies can be found in the following pages.

In general, it was felt that there was little interest in actual recycling in the camps, for making charcoal, for example. However, more interests were often expressed for trainings and capacity buildings for the same technology and techniques, with the hope of it becoming a source of income upon returns. **Using present time to explore different technologies and figuring out ways of adapting them to suit specific needs could be vital.**

Dismantling

As the camp population decreases and the number of vacant houses increase, the risk is that dismantling cannot keep up with the need, creating fire risk for those remaining in the camps. Additional resources and manpower may be required from outside of the camps, planning for this eventuality and reaching agreements with possible stakeholders will help ease the process.

Decommission

As population decreases, some communal facilities, such as latrines, will need to be decommissioned while the camps are still active.

Re-Sale

Materials of relatively high market value for re-sale such as galvanised corrugated iron sheets (CGIs) could be sold as scraps, or use in exchange for support from local villages in dismantling community structures as the camps reduce in size¹. Suppliers and wholesalers can be contacted in advance to assess possibilities and pricing.

Retain

Deciding what should be retained past camp closure as early as possible will help manage and focus resources in the camps.

Demolish & Decommission

Full demolition and specialised decommission for required facilities will need to take place following camp closure. Getting quotes and assessments done by potential contractor ahead of time will reduce stress and conflict when the time comes.

At present

Facilitated Voluntary Repatriation

Towards Camp Closure

5.2 Recycling possibilities

While it appears to be technically possible to recycle many of the construction material in the camps, meetings and discussions with committees and families in the camps showed interests around recycling to be lower than expected. Many agencies, including TBC, have reportedly attempted to introduced various recycling effort and technologies such as fuel efficient stoves². The key challenge that most agencies struggled with were engagement of those in the camps.

This is due to various reasons, chiefly:

- Common practices are for reusing rather than processing of waste material for further use.
- Quality of recycle products will likely be poor and will not provide adequate returns commercially or compete with other income generating opportunities.

However, two areas of interests were found in:

- Trainings and learning about theses recycling techniques and technologies with the view towards income generation post repatriation.
- The use of shredded thatches for compost appear to be successful in Mae La and will be replicated in other camps.

Other challenges faced when considering recycling of material in the context of camp closure include:

- The finite nature of these raw materials for recycling also means that investment will likely loses its return as soon as the camps close.
- Transport of material outside the camps for processing will render it too expensive for most camps

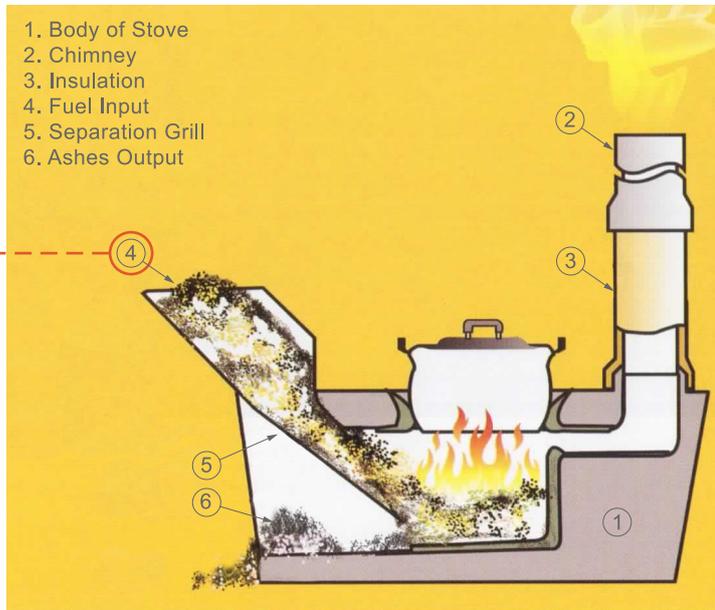
The following pages focuses on technologies and alternative energy methods that focus on using the most abundant and least re-used material produced in the camps - roofing thatches. It is possible that reduction of resources will provide more incentives for engagement within the camps.

¹ Meeting notes, Nupo CDNRM Multi-stakeholders meeting, 23 May 2016

² Meeting notes, Site 1 & 2 NGOs, 18 May 2016; TBC Field Coordinators, 11 May 2016

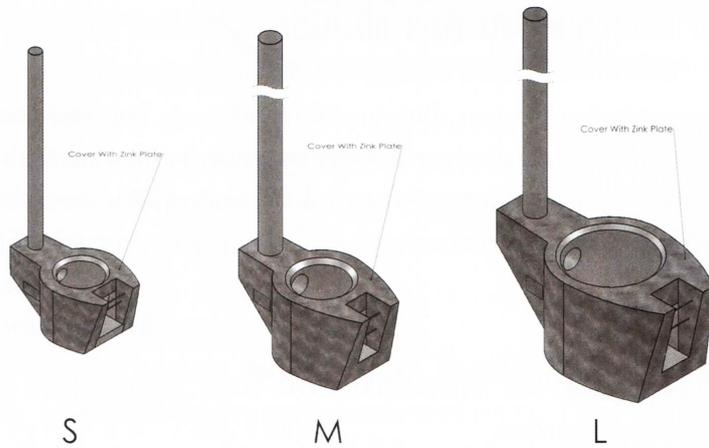
Energy Efficient Stove

Department of Alternative Energy Development and Efficiency (DEDE) knowledge centres also provide training for the making of energy efficient cooking stove that is suitable for household's use of small burning fuel such as agricultural waste, dry leaves, some construction waste particularly unrolled and woven bamboo. This type of stove allows Throwing materials to be re-used as a much needed resources that support everyday livelihood in the camps.

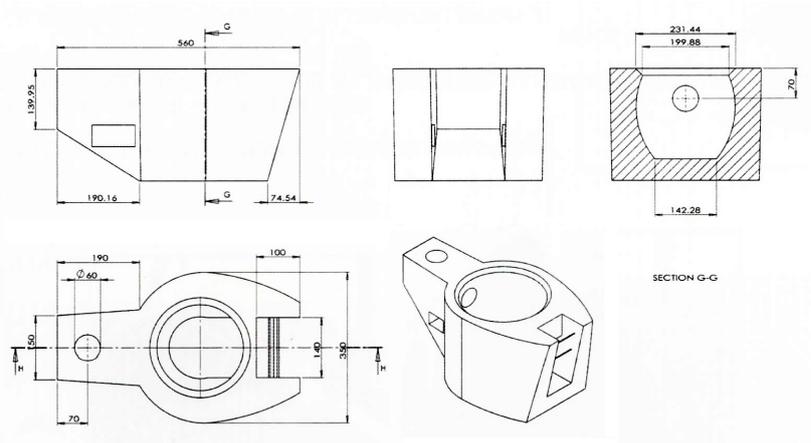


Material Requirement	Size/Amount
Cement	17 Kg.
Dry Husk	10 Kg.
Clay	20 Kg.
Aluminum Sheet #32	1 x 2m.

Material Cost / Unit = THB 500

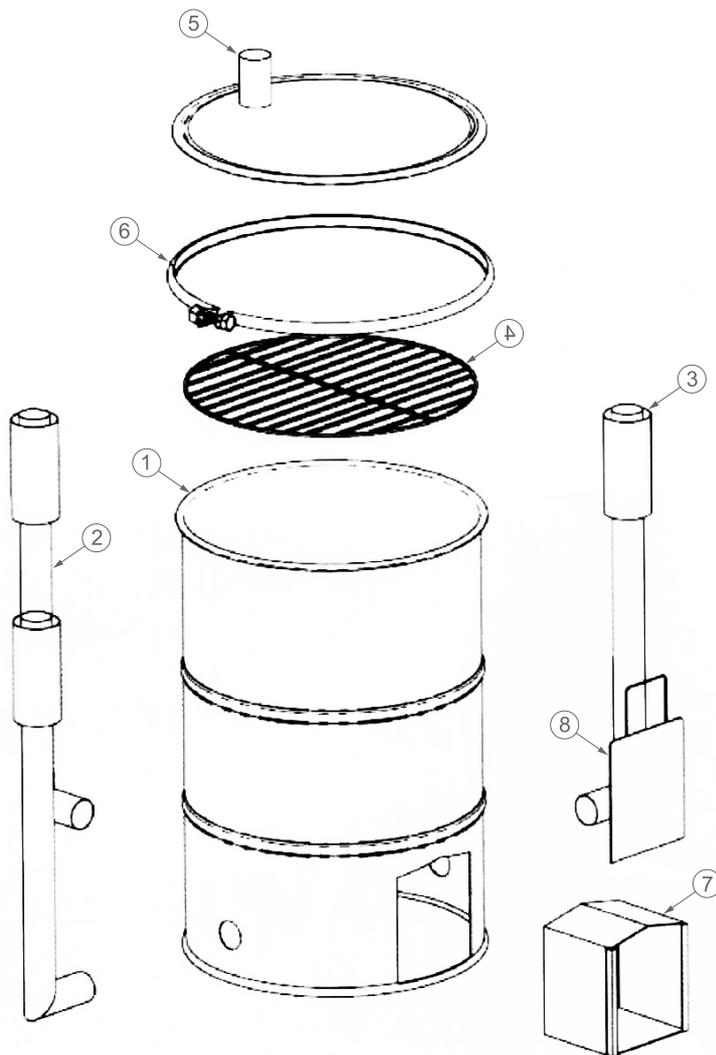


Contact (for Tak province):
 Niyom Utha
 Department of Alternative Energy
 Development and Efficiency (DEDE)
 Knowledge Center #10, Pitsanulok
 Tel: 055-299265, 055-299046
 081-8885526



Vertical Charcoal Kiln

Department of Alternative Energy Development and Efficiency (DEDE) hosts ten knowledge centres throughout the country that provide 2-day trainings to make vertical charcoal kiln and charcoal. This type of kiln is easy to make and suitable for turning small size wood into charcoal with wood vinegar as by-product. Wood vinegar is widely used in agriculture for pest control and mixed with compost as fertilizer, and has market value among local farmers.



Material Requirement	Size/Amount
200 Litre Oil Drum	1 Drum
2" Carbon Steel Pipe	3m.
3" Carbon Steel Pipe	0.6m.
9mm. Round bar	15m.
1"x1" Steel Angle	0.4m.
1mm. Thk. Steel Plate	0.82 x 0.2m.

Contact (for Tak province):
 Niyom Utha
 Department of Alternative Energy
 Development and Efficiency (DEDE)
 Knowledge Center #10, Pitsanulok
 Tel: 055-299265, 055-299046
 081-8885526

1. 200 Litre Oil Drum
2. Smoke Vent
3. Condensing Ring
4. Charcoal Separation Grill
5. Acceleration Vent
6. Secure Cover Belt
7. Front Burner Mount
8. Front Gate

Investment	
Price per Unit	THB 2,200
Pay Back Period	0.98 Yr
Operating Life Time	2 Yr / 100-150 Cycles
Charcoal Output	1,500 - 2,250 Kg.
Wood Vinegar Output	100 - 150 Litres
Total Profit	Roughly THB 25,000*

Operational Requirement / Cycle	
Raw Material	Roughly 60 Kg.
Fuel	4 Kg. of Small Burner
Manpower	1 Peson
Time	16 Hr.
Output #1	15 Kg. Charcoal (23% Mtrl Weight)
Output #2	Roughly 1 Litre of Wood Vinegar

* Estimated Charcoal Price: THB 5-7 / Kg.
 Estimated Wood Vinegar Price: THB 80-100 / Litre

1. Preparing Raw Material

Eucalyptus poles or bamboo Ø1" - 2" cut to the length of 60cm. long. Separate them into 3 piles according to their sizes: small / medium / large.



Position the material vertically down the kiln; small pieces first with the smaller end pointing down as the the upper part yields higher heat intensity than the lower part of the kiln.



Continue putting medium and large pieces until the kiln is filled up. Close and seal the lid.

2. Burning

Begin the burning process using smaller burning material to start the fire at the mount of the kiln. Keep adding the small burner until the humidity inside the kiln reach an effective level. Once the material in the kiln has started to catch fire, or as the kiln starts to noticeably release big white smoke, stop feeding the small burner and start leveling the gate down to about 3/4 to control air intake.

This process could take 1 - 2 hours.



3. Collecting Wood Vinegar

If the materials in the kiln are not too dry, they will release organic matters along with vapors of acetic acid during carbonization process. When the acidic gas is cooled, it condenses into pyroligneous acid, or known as wood vinegar.

To collect the vinegar, fill cold water into the ring shelf around the chimney, tea color liquid will drip down and can be collected from an opening at the bottom of the vent.



4. Charcoal Purification

Purification is mainly to get rid of tar. When smoke turns into blue, open the gate to about half to immediately increase Oxygen level and burning temperature until the smoke turns into light blue, or after about 30mins, depending on the size and type of material.

When charcoal is clear of tar, the smoke will turn clear. Close all the openings one by one and leave the kiln to cool down overnight or at least 6-8 hours.



Biomass Pellet

The majority of annual construction waste are grass and leaf roof thatch which are currently undergoing shredding test by TBC. Biomass pellet is one of a few possible solutions to turn these abundant construction waste into secondary - raw material that could help address household fuel shortage in the camps and potentially attract bulk buying interest from outside.



TBC's Shredding Test Result	
Raw Material:	500k Thatches
Operating Cost:	THB 152,586
Operating Manpower:	13
Operating Machine:	3
Capacity:	2,000 Kg./day
Production:	100k Kg. Powder



Leaf thatch collection



Shredding



Shredded thatches



Shredded dry husk (rough)



Medium



Fine



Hammer Mill grinding machine

However, it must be noted that, the shredded particles processed during TBC's shredding test is not fine enough to be compressed into biomass pellet. In order for the pellet to maintain the right density for proper burning, the material needs to:

1. Be shredded into particles not bigger or rougher than as shown above
2. Contain humidity level not more than 14%

Due to the mixture of bamboo trim, it could be estimated that biomass pellet made from grass or leaf roof thatch can produce heat value as high as 3,800 – 3,900 kcal/kg, suitable for household usage but may not be high enough for export.



Initial Set Up Cost for Biomass Pellet Making	
Hammer Mill Grinding Machine	THB 50,000 - 60,000
Pellet Making Machine	THB 150,000 – 200,000
Operating Cost (Elec. or Diesel)	Roughly THB 2 / Kg.

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Other Possibilities

Wood Particle Products:

Particle Board: Shredded leaf thatches can be compressed to make wood-based construction material such as wood particle board. The procedure requires heavy machinery and quality control to ensure it meets the industrial standards, therefore it must be carried out by an interested third party or factory with production capacity.



Particle Accessories:

With many forming method, shredded leaf thatches can also be turned into containers of different shape and form.



Building & Architectural Products:

Materials such as vetiver grass, rice straw and rice husk are commonly processed into particle board of different density. However, study of shredded grass and leaf roof thatch as base materials has never been conducted. Dr.Satta Panyakaew, Lecturer at Faculty of Architecture, Silpakorn University, is interested in proposing shredded grass and leaf thatch to his students to conduct an initial study to potentially re-producing these material for architectural application.

For Building & Architectural Products

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For Wood Particle Products

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6 RECOMMENDATIONS

“...Let’s not forget that these homes are more than just houses, and a lot more than just the materials they are made of.”

-- TBC, Nupo CDNRM multi-stakeholder meeting, May 2016

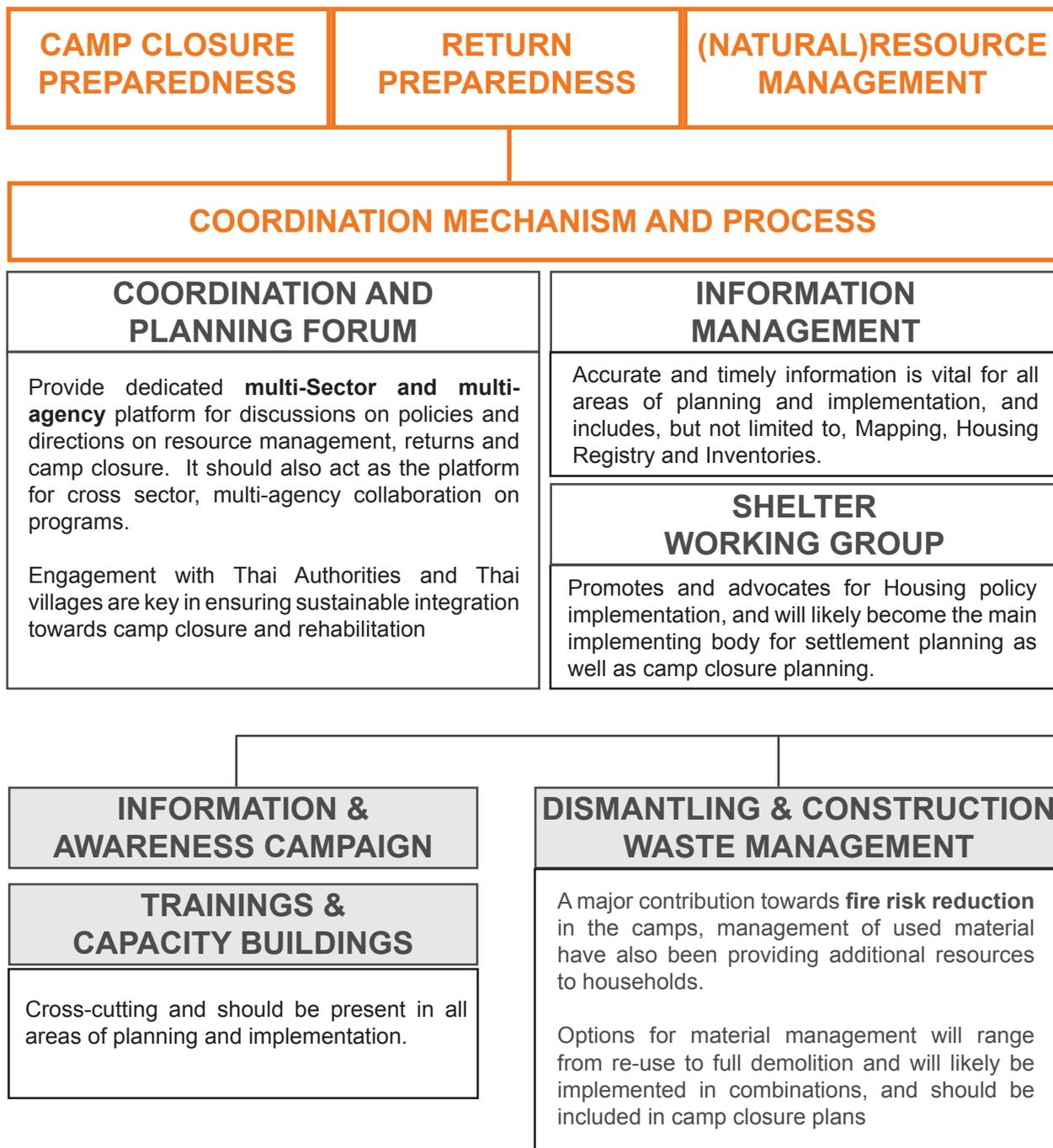


6.1 OVERVIEW

It has become apparent that consideration for dismantling, re-use and re-cycling of shelters must be done within the framework of camp closure preparedness and planning.

The below set of recommendations attempt to draw out a process that approaches the question of dismantling and recycling of shelter material from a much broader perspective of **Natural Resource Management, Return Preparedness and Camp Closure Preparedness**.

These recommendations should be seen to feed into Camp Consolidation, Decommissioning and Environmental Rehabilitation plan as part of UNHCR's Operational Procedures for the Facilitated Voluntary Repatriation of Myanmar Refugees in Thailand.



Existing overarching principles in community-led governing structures should remain the key principles for implementation

PARTICIPATORY

Participation remains the core of all planning, coordination and implementation activities.

COLLABORATIVE

Joint activities cross-sector, cross-agency to maximise resources should be promoted and encouraged.

ACTION PLANNING

CAMP CLOSURE PLANS (INFRASTRUCTURE)

Each camp formulates its own camp closure plan and identify key relevant stakeholders. Camp Closure planning usually comprises of three components: people, infrastructure, operations. This outline focuses on the infrastructure component and should be complimentary to the plan for facilitated voluntary repatriation.

SETTLEMENT PLANNING

Settlement planning must be dynamic, reactive and participatory, in order to respond to the constant changes that will take place in the camps.

Taking opportunities to move towards improving quality of life for those remaining in the camps, contribute towards rehabilitation process, maximises resources and ensure vulnerable families are part of the decision making process.

The participatory settlement planning process will also help build capacity for their eventual returns.

REHABILITATION

A holistic, full-circle approach to rehabilitation can offer opportunities for camp residents to participate in rehabilitation process of their own camps can be beneficial in learning about natural resource management in preparation for returns.

A Natural progression for Community-driven Natural Resource Management program in the camps, where available.

COORDINATION AND PLANNING MECHANISM FOR CAMP CLOSURE

In order to establish common vision, strategy and plans within the camps, it is vital that there is a

- Dedicated multi-Sector and multi-agency platform for discussions on policies and directions on resource management, returns and camp closure.
- Engagement with Thai Authorities and Thai villages are key in ensuring sustainable integration towards camp closure and rehabilitation
- Engagement with NGOs and CBOs, taking on responsibilities regarding community structures, as well as engaging more in multi-agencies initiatives within the camps.

This can be based on the CDNRM Collaborative Management Committee as set up in Mae Sariang, Nupo and Tham Hin, or set up as standing agendas for existing camps' general coordination meeting, making sure Thai villagers are also invited when the agenda is due for discussion. A Camp can start by forming settlement management committee,

Memberships should include:

Camp Committee

KRC/KnRC

Camp Commander and other local authorities

Sector Working Groups

Landowner

Thai village communities and/or leaders

NGOs/CBOs and UN agencies

Representatives from vulnerable groups

Environmental and other specialist NGOs and private sectors



Smaller working groups will be needed to implement and coordinate the efforts on the ground. Similarly, this can be a newly set up working group or utilisation of existing ones.

At the National or border-wide level, engagement can include donors, line ministries and other specialists in order to plan for border-wide exit strategy.

This same platform can also be used, at a later date, as the basis for rehabilitation planning committee.

INFORMATION MANAGEMENT

Accurate and timely information is vital for all areas of planning and implementation. Overall information management should remain hosted by camp committees and working groups. It is important to strengthen and increase capacity for information management in preparation for increase demand and workload.

Information Management activities can Include, but not limited to:

Housing Management System

Mapping

Inventory of assets for community structure and infrastructure.

Challenges

Reduced capacity in the camps as people return and resettle.

Dynamic and continuously changing situation can increase challenges for information management

CAMP CLOSURE PLANNING (INFRASTRUCTURE)

Each camp will need to formulate its own camp closure plan and identify key relevant stakeholders, within the framework of UNHCR's Operational Procedure for the Facilitated Voluntary Repatriation of Myanmar refugees in Thailand. Camp Closure planning usually comprises of three components: people, infrastructure, operations. This recommendation focuses on the infrastructure component and should be complimentary to the plan for facilitated voluntary repatriation.

The planning should utilise the existing community-led governing structure within the camps. The participatory process will be vital in ensuring common understanding on roles and responsibilities amongst all stakeholders. One of the key task will be to established and agree upon clear indicators and trigger points for activation of plans will help ease the process.

Below are possible checklist of activities that can act as a base for implementation planning. It should be adapted to suit the specific camp's context.



ACTIVITIES	NOTE
Stakeholders identified	
Establish task required for camp closure (infrastructure)	
Roles & Responsibilities agreed to by relevant stakeholders	
Adapt camp-specific strategic road map for camp closure, identify gaps for both resource and capacity.	
Plan for Communication Strategy, set up help desk, Q&A, etc.	
Inventory of Community Assets - community buildings, equipments, infrastructures.	Information Management
Discuss with donors regarding use of community assets following camp closure, as well as intention for funding camp closure activities.	
Discuss with local authorities and landowner regarding requirement for existing semi-permanent structures and infrastructures in the camps	Landowner, Thai Authorities
Ensure that sectoral considerations is included.	
Ensure that needs of the vulnerable groups are included.	
Considerations for and plan with likely Residual Population	
Establish Indicators and Trigger points to activate each activities.	
Agreement reached between humanitarian agencies, local authorities, land owner, camp committee, local villages around plans for built structures and infrastructures in the camp	
Plans for dismantling, reusing and recycling, or disposal of construction material for community structures is in place	

See <http://www.globalccmcluster.org/tools-and-guidance/publications/camp-closure-guidelines> for more detailed camp closure guidelines.

Challenges

Clarity on rehabilitation plans from Thai government will help shape camp closure plans. However, this may not be available until the camps are closed.

DISMANTLING AND CONSTRUCTION WASTE MANAGEMENT

On-going construction waste management is a major contribution towards **fire risk reduction** in the camps, management of used material have long been providing additional resources to households. Options for material management will range from re-use to full demolition and will likely be implemented in combinations, and should be included in camp closure plans.

Recycling should be introduced for capacity building purposes as preparation to returns, even though interests for implementation in the camp were low both in and outside of camps.

Below are possible checklist of activities that can act as a base for implementation planning. It should be adapted to suit the specific camp's context.



ACTIVITIES	NOTE
Engage relevant sector working groups in - those already managing solid waste disposal and those who may benefit from recycling products.	WASH, Livelihood, etc.
Improve logistics and management of current thatches disposal practice	
NGOs and CBOs take inventory of their facilities and assets	Initiated
Continue to explore adaptation of recycling technologies that may apply to the camps' context, and use of recycled products in the camp.	On-going
Engage Thai villages for interests in: taking used material such as shredded thatches for compost, join trainings and workshops planned, sharing lessons learned from the village.	
Offer training opportunities for interested groups on recycling techniques and other technologies such as eco-stove and biomass stove.	
Information campaign regarding sustainable use of firewood, introduction to agro-forestry,	
Expand the housing policy with KRC and KnRC to include community buildings, and assets, especially with regards to dismantling and handover.	On-going
Consultations to set benchmark around camp's internal capacity for dismantling and material management. Asking questions such as: - What is the maximum number of houses that can be dismantled in a month with existing capacity? - If the rate of returns exceed that maximum number, where will additional resources come from to dismantle shelters and help consolidate schools?	
Draft Plans for dismantling, reusing and recycling, or disposal of construction material for community structures	
Identify additional source of dismantling workforce from outside the camp, potentially in exchange for the material dismantled.	
Obtain quotes for contractors for dismantling / demolition	

Challenges

Little value is placed in material like bamboo and thatches and interests for recycling initiatives of these material is low outside of camps.

Quality of recycle products will likely be poor and will not provide adequate returns commercially or compete with other income generating opportunities. Once the camp closes, the flow of material will also stop - rendering investments for recycling redundant

Transporting material outside for processing will render the process too expensive for most camps.

SETTLEMENT PLANNING

Settlement planning must be dynamic, reactive and participatory, in order to respond to the constant changes that will take place in the camps. This process is vital for consolidation of camps, to ensure that camps residents continue to have access to key services as the population decreases. Planning out the consolidation will take the opportunities to improve quality of life for those still living inside by maximising available resources and ensuring that vulnerable families are part of the decision making process.

It can also contribute towards rehabilitation process, initiates setting up of zoning such as green zones and recreational areas. Participatory settlement planning process will also help build capacity for their eventual returns.

Below are possible checklist of activities that can act as a base for implementation planning. It should be adapted to suit the specific camp's context.

	ACTIVITIES	NOTE
Towards Camp Closure	Mapping of the camp	Information Management
	Working with CDNRM Collaborative Management Committee (where present), carry out consultation, at section level, with different focus groups	
	Use of community mapping process to discuss concerns and need within the section	
	NGOs and CBOs take inventory of their facilities and assets	Initiated
	Invite experts and for workshop on community settlement planning with focus on consolidation in the camps, agro-forestry, reforestation, etc.	
	Consultations to set planning figures, actions, and their benchmark trigger points. Sample questions can include: - What is the minimum population in the section before it should be combined with another section? - How many students in a school before it should be consolidated with another school? - Which key services and facilities cannot be moved? - Resources and capacity required for consolidation?	
	Draft consolidation plan as the result of consultations and workshops	
	On the inventory, working with local authorities and villages, reach an agreement on future plans for each of the community structures and infrastructures.	

Challenges

Lack of resources to carry out consolidation plans

After a certain period of facilitated returns, there will not be enough manpower in the camps to carry out and support consolidation.



REHABILITATION

It is important to recognise that rehabilitation process can start at any time. A holistic, full-circle approach to parts of rehabilitation can offer opportunities for camp residents to participate in rehabilitation process of their own camps can be beneficial in learning about natural resource management in preparation for returns.

For many of the camps, this will be a natural progression from Community-Driven Natural Resource Management, rather than setting up of a new committee. By working with forestry departments on this process, it will also ease coordination in other areas of camp closure and on-going maintenance of the camps.

Unless otherwise stated, planning assumption should be that MOI's will return the land to its original condition prior to handing over back to its owner.

Below are possible checklist of activities that can act as a base for implementation planning. It should be adapted to suit the specific camp's context.



ACTIVITIES	NOTE
Working group members/committee identified, along with tasks and roles & responsibilities.	
Coordinate with Forestry Department for trainings and supports	
Consultation with landowner and local authorities	
Workshop and trainings for camps residents and surrounding Thai villages in seed collection, identification, etc.	
Setting up of nursery with the support and coordination of Forestry department	
Review camp-specific Housing Policy that promotes ease of transition into rehabilitation	
Raise awareness and promotes implementation of agreed Housing Policy.	On-going
Coordinate with dismantling and settlement planning groups to plan together for when a house become vacant, or a community building have to be dismantled. Collectively draw up strategy and plans.	
Engage with other specialised NGOs and Foundations, such as - Forest Research and Restoration Unit (FORRU), Chiang Mai University - Green World Foundation - Sueb Foundation	
Work with schools and organise workshops for youth groups	

Challenges

Getting engagement and traction from local Thai villages in camps where CDNRM Collaborative management committee is not already active. Villages that do not share watershed with the camps will be less likely to participate.

ANNEX

Annex A: Meeting Notes (attached)

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