



## HARTWOOD BUILD YOUR OWN VILLAGE SERIES

### **Timestock Model Introduction & Tutorial**

(For use with spreadsheet v2.71)

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## Timestock Model

This Hartwood finance model is designed to allow a group of people with disparate skillsets and financial resources to equitably combine their efforts in the creation of a largely self-built, resilient community. Although external finance, and paid specialists are incorporated, it is primarily aimed at enabling fair exchange between a wide range of potential residents, since this is key to getting on the ground for both those who possess capital, but lack skills, time or ability to labour, and those who have these, but lack capital - a very common scenario.

### Key Concepts & Limitations

A model aimed at getting you started cannot encompass every real-life wrinkle. Like any other, this tool has been developed from a particular perspective, ours being not perpetuating the fiction of individual land ownership, with its attendant corruption and misery. The landbase itself will be jointly owned by the community body, held in trust, whole and unmarketable, to prevent speculation, debt and fragmentation. So do not confuse threshold values with individual purchase / resale of plots or as security for loans, think more council house, or leasehold.

It is also assumed the aim is to create a community, not a housing estate, so an option for community work is built into the model. It is always possible to allow money in lieu of work, and that is for each project to determine themselves. For some, time is often more plentiful than money, other high-earners would prefer to take a few minutes to contribute what others must take an hour to do, and this is bound to reinforce inequality. Consider carefully how you may inadvertently replicate the same divisions already crippling society within your new, 'improved' community. Also consider the benefits of time spent working together to achieve common aims. Indeed it is very worthwhile to make sure you spend time doing exactly this before choosing fellow residents - there is a lot to be learned from seeing how others contribute in groups, both practically and energetically. Better to do this in a non-committal way before binding yourself to financial and physical interdependence.

To keep the model simple it uses flat rate community hours for each household. This could be varied if considered fairer (to reflect differences in access and facilities etc.). In that case you could treat this as an averaged rate. It can also be set to zero, but then leaves you with the issues of creation and maintenance of community resources, such as roads and tracks, fences, communal buildings, food and processing, power supplies etc. through money alone, which is a burden most small scale rural projects could do without, especially at startup. How sustainable/realistic is it to expect to be able to both build a village and produce food in a (probably) remote rural location, yet also travel to earn money to pay others to travel into your village to carry out essential works you could do yourself?

**The threshold** is key to understanding the equality of this model. **Its aim** is to provide a clear mechanism for any group to achieve financial balance within a short timescale. To surmount initial monetary inequalities and arrive at the point where everyone has contributed an equal share to the creation of their community. **What it is**, is simply the average of all money invested on day one, the equal share of initially unequal contributions, *excluding* any loanstock (see below). The threshold as equal share determines the timestock amounts.

Those who invest in timestock (over threshold) are extending a helping hand to those who would otherwise be excluded (often young, skilled and enthusiastic), who can now join under threshold, in return receiving a helping hand with construction, landscaping, planting etc on their own plots, right from the start, when workload is most intense. The threshold is effectively the non-speculative value of the home plot, the amount paid when joining, and received when leaving. Over threshold households would receive just threshold value on leaving (plus any *unused* timestock paid for, if still owed). Under threshold households would also receive the full threshold value, less any timestock hours not yet worked off, if still owing). Once timestock is used up, everyone is on an equal footing, the haves *and* have-nots have it all!

## Basic Model Layout

Figures you need to type into the spreadsheet are highlighted with grey boxes as shown in fig 2. below. Everything else updates automatically whenever any of these amounts are changed (but only after you click or use the arrow keys to move the cursor elsewhere). Be careful not to type in any other boxes.

The first sheet is named **Finance Template**. You can work with this, but it is better to follow the simple instructions below and work with the copy you create. If you do mess up the template, you can always download a fresh copy of the model and start over.

## Initial Setup

You can work through the tutorial below straight away, but before using the model for your own projects you will need to check a couple of settings to make sure calc will work correctly with this spreadsheet. Just follow these simple step by step instructions:

- In the top menu: **F**ile **E**dit **V**iew **I**nsert etc. Click Tools then Options...
- Click Security in the list, then the Macro Security Button on the right
- Select Medium in the Security Level tab then OK button
- Now click the wee + sign beside LibreOffice Calc and choose General in the list
- Make sure Expand references when new columns/rows are inserted is ticked and then OK

Your essential first step is to decide how many households you need in your project, and create a sheet that will allow you to work with them. To do this, click the **Create New Village** button (fig 1.). *If nothing happens, make sure you have followed the steps above, close and reopen the spreadsheet. This should now flag an alert so you can allow or disallow macros to run. You will need to enable macros to Create New Villages.* In the popup box type the number of households you require (maximum 100) and click OK. The sheet will automatically generate a list of households matching the number you enter, and adjust the overall layout to accommodate them.

In the second popup box enter a name for your village and OK. The screen will move to the new sheet, which you will notice does not have all the buttons and instructions of the template, and your village name is displayed at the bottom. You can create as many villages as you wish, and use the tabs at the bottom to move between them for comparison. *Don't forget to also save the spreadsheet! Control & S or File > Save or click the disc icon.*

*If this next section seems a bit overwhelming, you may find it easier to walk through the tutorial on the next page first.*

## Essential Inputs

Here is a list of all the required inputs, with a brief description of their real life counterparts. These are all entered in the grey boxes shown on the right. It doesn't matter which order you enter the figures.

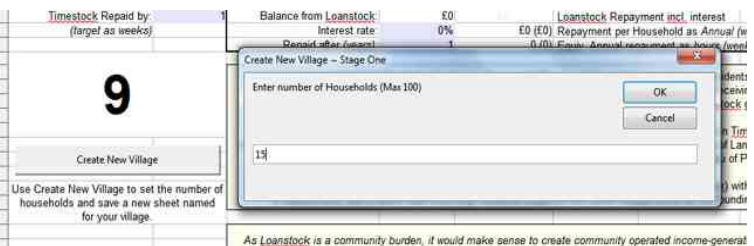


Fig. 1

	A	B	C	D
1	Land Price:	£85,000	9 Households	£ sterling
2	Startup Costs:	£25,500		Paid at Start
3	Changeover Fund:	£17,000	1	£8,300
4	<b>Total:</b>	<b>£127,500</b>	2	£4,500
5	Equal Share per household:	£14,167	3	£23,500
6			4	£1,500
7	<b>Threshold</b>	<b>£6,000</b>	5	£7,000
8			6	£0
9	£/Hour wage rate:	£8	7	£5,000
10	Av. Working Week (hours):	35	8	£3,500
11			9	£0
12	Community Plot Rent:	8		
13	(as hours per week)			<b>Totals:</b>
14				<b>£53,300</b>
15	Timestock Repaid by:	104	Balance from Loanstock:	£74,200
16	(target as weeks)		Interest rate:	3%
17			Repaid after (years):	5

Fig. 2

- **Land Price (B1)** - the cost of your chosen site. For a reasonable degree of resilience you should be aiming for around 3 to 5 acres per household, including a range of pasture and forestry. Prices in the UK range from £1000 per acre upwards depending on location, size, orientation, elevation and quality. Do your research. Look at real properties on the market. Anything with existing buildings/planning permission will cost up to 33,000% more. Your choice. If your group already has access to land with no liabilities, enter zero here.
- **Startup Costs (B2)** - Ideally most of your raw materials: stone, timber, aggregate, perhaps slate and straw etc. will come directly from your landbase. This cost is for all the essential things not available internally or to borrow. Depending on your community model, this may include generation, extraction and conversion equipment, bulk bought fixings and materials, food supplies, communal vehicles etc. Research, tot them up and enter the total here. *Don't guess!*
- **Changeover Fund (B3)** - *Optional*. Although it may seem simplest to just have an incoming resident pay the outgoing one, in practice it is way fairer to everyone if the community facilitates changeovers, so outgoing residents can be paid immediately, residents can evaluate prospective incomers without pressure, and newcomers can join on the same flexible terms as founding members. We would recommend to set this at around double the threshold value.
- **£/Hour Wage Rate (B9)** - equivalent to setting your own minimum community wage, this is the internal time/money exchange rate. It controls the amount of work under threshold residents must undertake to reach parity, also the amount of work over threshold residents receive for their timestock. See tutorial for more detail.
- **Average Working Week (B10)** - This is a conversion factor which only affects the weekly equivalent figures displayed in brackets in the Timestock columns (for guidance).
- **Community Plot Rent (B12)** - *Optional*. This is an agreed amount of time per household contributed to community development/ maintenance. If used it is additional to any timestock hours worked, and is included in the Initial Commitment column. It remains as an ongoing commitment after timestock is paid off. If agreed, purchased timestock (while it lasts) could be used to offset this obligation.
- **Timestock Repaid by (B15)** - the point in time by which you are aiming to have all the timestock hours worked off *i.e.* equivalent to everyone having an equal capital investment, so now everyone has contributed the same. Recommended to aim for two years or less, and to not exceed any minimum commitment period agreed.
- **Paid at Start (see fig 3)** - this is the initial money contribution each household can bring upfront to the project. Any shortfall in the total here has to be met by Loanstock from private, IPS or bank loans (shown in **Balance from Loanstock:**). In your saved village sheet you can replace the numbers with actual names (*don't do this in the template!*).
- **Interest Rate (fig 3)** - if using private or IPS loanstock, this is up to you, commercial loans will dictate their own. Shown to the right of the balance is the repayment total, including compound interest accrued over the term set underneath in:
- **Repaid after (years) (fig 3)** - the term (time taken) to repay any loanstock debts incurred. Loanstock is paid as a lump sum at completion. Commercial loans usually demand regular instalments. The former is more suitable when starting from scratch.

C	D
10 Households	£ sterling
	<i>Paid at Start</i>
Abi	£8,300
Ben	£4,500
Claire	£23,500
Dom	£1,500
Eli	£7,000
Fred	£0
Ginny	£5,000
Harry	£3,500
Isa	£0
<b>Totals:</b>	<b>£53,300</b>
Balance from Loanstock:	£74,200
Interest rate:	3%
Repaid after (years):	5

Fig. 3

## Tutorial - Using the Model

Whether you have an existing group with known resources and requirements, or are just imagining how on earth you are going to make this happen - this tool will allow you to judge how many folk you need for a given piece of land, or vice versa, how long before everything is paid off, how many hours a week you can expect to contribute to the project, both initially and long term, what kind of investment you require and how wide a range of residents you can accommodate.

Some parameters e.g. land price, commercial loan interest and terms etc. are beyond your control, and must therefore be entered as is. Others are completely under your control, and can have profound effects upon the viability of your project. This is a model, there is no right or wrong. It is *designed* to play with, to see the effects of various decisions, the irrelevance of others, and the most likely paths to success - so go play!

Changing the figures is as simple as clicking on them and typing the new number. Remember nothing changes until you move out of the box by clicking elsewhere, or using the arrow keys.

**To begin** - click on the tab labelled **Tutorial A** (just under the main grid area). This village has:

- 15 households
- *Land Price* of £85K
- *Startup Costs* of £25.5K
- *Changeover Fund* of £17K
- giving £127.5K in total.

Divided equally between the 15 households this is £8.5K, the figure shown in grey under the total as *Equal Share per Household*.

They are also blessed with the rare but happy event of all residents being able to raise the £8.5K upfront, and therefore have no need to resort to loans, either as loanstock or timestock. You will note the lack of obligations (lots of faint zeros) apart from the *Initial Commitment* of 8 hours per household. This derives from the figure of 8 hours in the *Community Plot Rent* at B12. Change this to 0 (click in B12, type 0, down arrow) and you'll get even more zeros, (though not a lot of facilities) in your model village. Whatever is entered here will be added to the Initial Commitment total. You'll want to make sure this doesn't go much over two days per week to ensure everyone, including under threshold residents, have time to work on their own plots.

	A	B	C	D
1	Land Price:	£85,000	15 Households	£ sterling
2	Startup Costs:	£25,500		<i>Paid at Start</i>
3	Changeover Fund:	£17,000		£8,500
4	<b>Total:</b>	<b>£127,500</b>		£8,500
5	Equal Share per household:	£8,500		£8,500
6				£8,500
7	<b>Threshold</b>	<b>£8,500</b>		£8,500
8				£8,500
9	£/Hour wage rate:	£8		£8,500
10	<i>Av. Working Week</i> (hours):	35		£8,500
11				£8,500
12	Community Plot Rent:	8		£8,500
13	(as hours per week)			£8,500
14				£8,500
15	Timestock Repaid by:	104		£8,500
16	(target as weeks)			£8,500
17				£8,500
18				
19				<b>Totals:</b> £127,500
20				
21				
22				Balance from Loanstock: £0
23				Interest rate: 3%
				Repaid after (years): 5

Fig 4.

Now try changing other figures such as *£/hour wage rate*, *timestock repaid target*, *loanstock years*, *interest rates* etc. Observe how these have no effect whatsoever. To be free of debt is a wondrous thing! This is a reminder that whichever setup you choose to get started with, any loanstock and timestock arrangements are only temporary (perhaps as little as a year or two), after which you will all be in this bright, fruitful state, with debts only memories.

This is the happy day the mortgage (literally death pledge) is paid off, and you're no longer working for the man. OK, so now back to reality...

Or at least a step closer. Before moving on, note how the *Threshold* figure in the big green box is the same as the *Equal Share per Household* (£8,500). As the average of the identical £8.5K all 15 households have *Paid at Start*, it is of course the same amount. Now click on the tab labelled **Tutorial B**. Same startup costs, same number of households, but now we have an eerily uniform

bunch of residents who can only come up with exactly £6K each to put in the startup pot, a total of £90K, causing a shortfall, now showing as the £37.5K *Balance from Loanstock*: (here D21) just under the *Paid at Start* total.

Luckily, between them they have enough wealthy parents and friends willing to loan them sufficient dosh to raise the £37.5K privately, so they have arranged a fixed term loan for five years at 3% interest. These figures are entered in the two grey boxes *Interest Rate: & Repaid after (years)*: just underneath the *Balance from Loanstock* box, and the resulting total with compound interest is shown as *Loanstock Repayment incl. interest* to the right of the balance.

The two remaining items in the Loanstock area show:

- *Repayment per Household* - exactly how much each household will have to find each year (or each and every week) to repay this particular money loan at its due date. In this case the total repayment split 15 ways and then divided by five to give an annual amount.
- *Equiv. Annual Repayment* - the equivalent amount of time if the community can offer paid work from any of its income generating businesses instead (paid at the standard wage rate just under the green threshold box), i.e. the wage goes to the repayment pot rather than the resident.

Try changing the number of years and interest rate to see how they affect the final repayment amount for the same loan. (Click on either grey box and type a number - don't include a % sign in the interest rate, just type the number and move the cursor away). Also note how this affects each household's repayments. No wonder banks have it easy!

Finally, see how the *Threshold* figure (green box) has now dropped to £6,000, again as an average of the identical amounts paid by each household, whilst the *Equal Share per Household* figure remains unchanged at £8,500, as what it says on the tin. The Timestock columns are still all empty though. We'll move onto those in Tutorial C, but for now it's important to realise that Loanstock operates independently from Timestock, and is only required when the total of *Paid at Start* amount falls short of the *Project Total*: in box B4.

Let's move to **Tutorial C**. Again same startup costs, same number of households, but now we have a more realistic mix, who between them come up with slightly more than the previous lot, but are still short at £93K, leaving £34.5K to be raised through Loanstock, on the same terms as before.

Each household now contributes varying amounts to the *Paid at Start* fund. As the total is slightly higher at £93K, so too is the Threshold, now showing as £6,200, the average of the £93K. Only Number One household pays the exact £6,200 threshold, four start with no money at all, another five are under threshold, with the remaining five over threshold and purchasing Timestock in varying amounts.

Let's start by looking at Number One household. Joining at exactly threshold amount, they are Polonius' "Neither a lender nor a borrower be", and their Timestock Owed and Due columns are blank, with only the Community Plot rent (here set @ 8 hours) showing in their Initial Commitment column. As they have purchased no Timestock hours, their Received Hours per week (column H) is also empty.

Now check out Number Two household. Joining with £4,500, they are £1,700 under the £6,200 threshold. With the Community £/hour Wage set at £8 /hour (B9), this translates into 213 hours owed to reach the Threshold ( $1700 \div 8$ ). The 213 hours shows in their Timestock Owed column and as six weeks in the brackets. The weekly figure is just to give an idea of the time involved, since large numbers can be a bit meaningless. It is also rounded, so with the hours to week ratio set at 35 in the Av Working Week box (B10),  $213 \div 35 = 6.08$  weeks but shows as just six. The hours are accurate, weeks in brackets are just a guide figure.

They can work these hours as additional ones for the community at large (if income generation is in place), or for various over threshold residents directly, in which case the nature of the work is entirely up to the individuals concerned. In this case it could mean six and a bit actual weeks work if that was all full time at 35 hours every week on other's projects, leaving none for the community, or say eight weeks including community work but still none for themselves.

In most cases, especially for larger amounts owed by low entry households, it would make more sense to spread this out over a longer period, interspersed with community work and getting yourself established. To help visualise this, the initial Commitment column shows the total hours owed divided by the Timestock Repayment period (B15) here set at two years, plus any Community Hours required, so for them ( $213 \div 104 = 2$ , + 8 = 10 hours per week).

Number Three household, joining at £17,300 over threshold, have a substantial asset in the 2163 hours ( $17,300 \div 8$ ) showing in their Timestock Due column. 62 solid weeks @ 35 hours per week. To gain a better appreciation of that figure in real life, the *Received Hours* column divides that total by the Timestock repaid target ( $2163 \div 104 = 21$ ) to give the average number of hours they can expect to have people working for them each week over those two years, in this case about three person days every week. This might suit an elderly or disabled resident unable to construct their own home, or someone planning to create a complex forest garden with a lot of preparatory landscaping, pond creation and planting, perhaps over a sizeable area.

It is simpler, if less flexible for all hours owed to be worked directly for those who have purchased them. Surplus timestock hours could be spent in lieu of community work (until used up), so under threshold residents will be performing extra community work instead of working directly for various residents. It will be best if the whole community concerns itself to ensure fairness and timely repayment of Timestock, rather than leave it to the individuals concerned, or at least feel obliged to intervene promptly if problems should emerge.

The rest of the households are really just variations on a theme, in this scenario even the £0 entry households are only looking at one day a week for the community, one day a week for timestock work for the first two years and the rest for themselves. Apart from any additional Loanstock obligations, which everyone still shares until paid off.

### **Time is Money - fair exchange?**

In our experience there are many practical, skilled folk who can find time to work, but not to save large sums of money, who are thus barred from such projects. Conversely there are many who desire a more community orientated life, have the funds but can't see any useful or desirable projects to invest in.

The most common objection we have encountered to this model is that it allows 'indigents' with little or no capital to just waltz in, and after a couple of years or even less, leave with a chunk of capital drawn from the hard earned cash contributed by more 'stable, hard-working' members. This skirts the much thornier issues characterised by Steve Biko's "The greatest weapon of the oppressor is the mind of the oppressed", unthinking knee-jerk attitudes & reactions that form the backbone of the status quo. This is not the place for such discussions, but a couple of further model examples may be enlightening.

**Tutorial D** is exactly the same village setup as Tutorial C with just one difference. There are now an extra 5 households involved in the project, every single one of whom brings nothing but their hands and skills. Not a penny between them. This of course assumes that the land has room for them. Flip between the two villages C & D. Notice how this influx of penniless newcomers affects everyone, both under and over threshold, and their Loanstock repayments.

Number One household now finds it has five full weeks of help it didn't before, for the same investment. Number Two household now finds itself burdened with a trivial 25 hours to pay off,

compared to the 213 it faced before, again for the same investment. Number Three household also gains, though in proportion to their total, the extra 187 hours of help perhaps seem less spectacular. And for everybody, the annual Loanstock repayments drop from £534 a year to just £400, a 25% reduction. Not quite a burden shared is a burden halved, but you get the point. Community is about people and sharing. It's about what you do while you're there, not what you did, or couldn't, do before.

Of course money always helps. In **Tutorial E**, a couple of the extra incomers instead do bring in some dosh, another £12,500. Because the threshold rises to the average of the new total Paid at Start of £105.5K, everyone loses out a little on the timestock compared to village D, but are still better off than they were with only 15 households in village C. The most pronounced difference is in the Loanstock repayments which are halved for everyone from village C levels, £256 instead of £534, year on year.

This is really only scratching the surface of what can be achieved. Having hopefully gained a feel for the Timestock model and a sense of what the various numbers mean in real terms, it is time to address the elephant in the room, the most crucial factor - the *£/hour wage rate*.

### **Money is Time - how much are you worth?**

You could complicate this by designating different wage rates for different jobs, but again if your aim is an equitable society, perhaps everyone's hour should be equal to anyone else's where community work is concerned. If not, just treat this factor as an average wage. Regardless, there is a more immediate, critical aspect to this setting.

Choose any village using Timestock: C, D, E or create one of your own. Then change nothing but the *£/hour* figure in box B9 (just enter numbers - no £ sign). Raising the exchange rate means under threshold residents are paid more and so work less hours to reach equity (pay off their debt) whilst timestock purchasers get less hours worked for their investment. Lowering it creates the opposite - 'poor' work more, 'rich' get more, just like the 'real' world! This is an emotive and potentially deeply divisive decision to make, and needs careful consideration.

Whilst the example rate of £8 per hour may seem high to some, and low to others, it is worth bearing in mind just how fragile money itself can be. Here you will be committing to offer or receive a fixed amount of time. An hour now will still be worth an hour in a year or two's time. The same can't be said of money. Again your intent is paramount here. Are you all in this together or no? Setting this factor too high will deter investors, too low will create a shortage of people to provide labour and services to those who need/desire them. What use is money if there is nothing to buy?

Here in miniature is the familiar battleground of wages and prices, only this time you, the community have your finger on the trigger. These are the people you are working with, quite likely sharing meals, resources, space and dreams. Finding a balance that is acceptable to everyone will take care and honesty - no bad things to build into the foundation of your community. The first few years will shape more than just roads, fields and houses. They will shape the way your community functions as a whole, the way you feel when you step outside, encounter a neighbour. Do your best to strike the right balance.

And above all remember - all of this is only temporary. Once Timestock has been paid off - you are all in the happy position of village A, debt-free and beholden to none but those you choose to share your life with. Or at least as village B until Loanstock is also paid off.

We hope experimenting with this model and the various scenarios will help you escape the thrall of poverty, or its dark mirror, the fear of losing hard-earned money; to realise your potential as a group and experience, perhaps for the first time, the awesome power of co-operation and true self-determination in your life.