

# CORE PREMISE

## URBAN FARMING : URBAN VISION AND OBJECTIVES



### URBAN F.A.M.I.N FUTURE FARMING.

#### Architectural Parameters

The project Urban F.a.m.i.n ( Urban Farming and Interactive Networks) investigates how architecture can become a parameter in the development of the future city. A city which will become self sufficient, adaptive and cyclical in its makeup. One which will grow but require less, one which will shrink but subsist with more. To understand fully the possibilities of such an architectural parameter

for the future city it is a necessity to understand it fully. Understanding how architecture effects networks, interactions, the movement of people, the requirement for work, what work is, will prove its significance in the regeneration and configuration of this 'future city'.

The architecture in this project investigates the possibilities of such parameters, weaving its way into present networks in the hope of creating new ones which will become more beneficial than those preceding.

#### Urban Vision

The programme proposed will provide for the afore mentioned sustainable Future city. The project is centred around food cultures and media networks. It has become well known that

sustainability can be improved by the production of food in urban spaces, sourcing local foods and selling the produce of local farmers. However, global sustainability is still an issue.

#### Why so?

In essence sustainability cannot survive with out promotion, a promotion mainly through current media outputs.

Therefore the 'future city' will require schemes constantly integrating methods of promotion. The urban vision for this project is to realise a hybrid scheme that produces its own food and has the capabilities to promote this action and the actions of local city growers in the city

through media outputs such as TV broadcasts, internet blogging and RSS Feeds such as Twitter

Fig 1.1 below provides a representation for the urban vision for the project. The red glow represents the hybrid scheme which acts as a 'host' to the surrounding green spaces promoting there actions of local growing to the wider city.

The 'public vote' is the reason for the success of current TV shows such as 'American Idol'. They allow the user to feel they have an effect on the outcome . Combining public interaction and promotion through TV will ensure the success of this scheme within the cityscape.

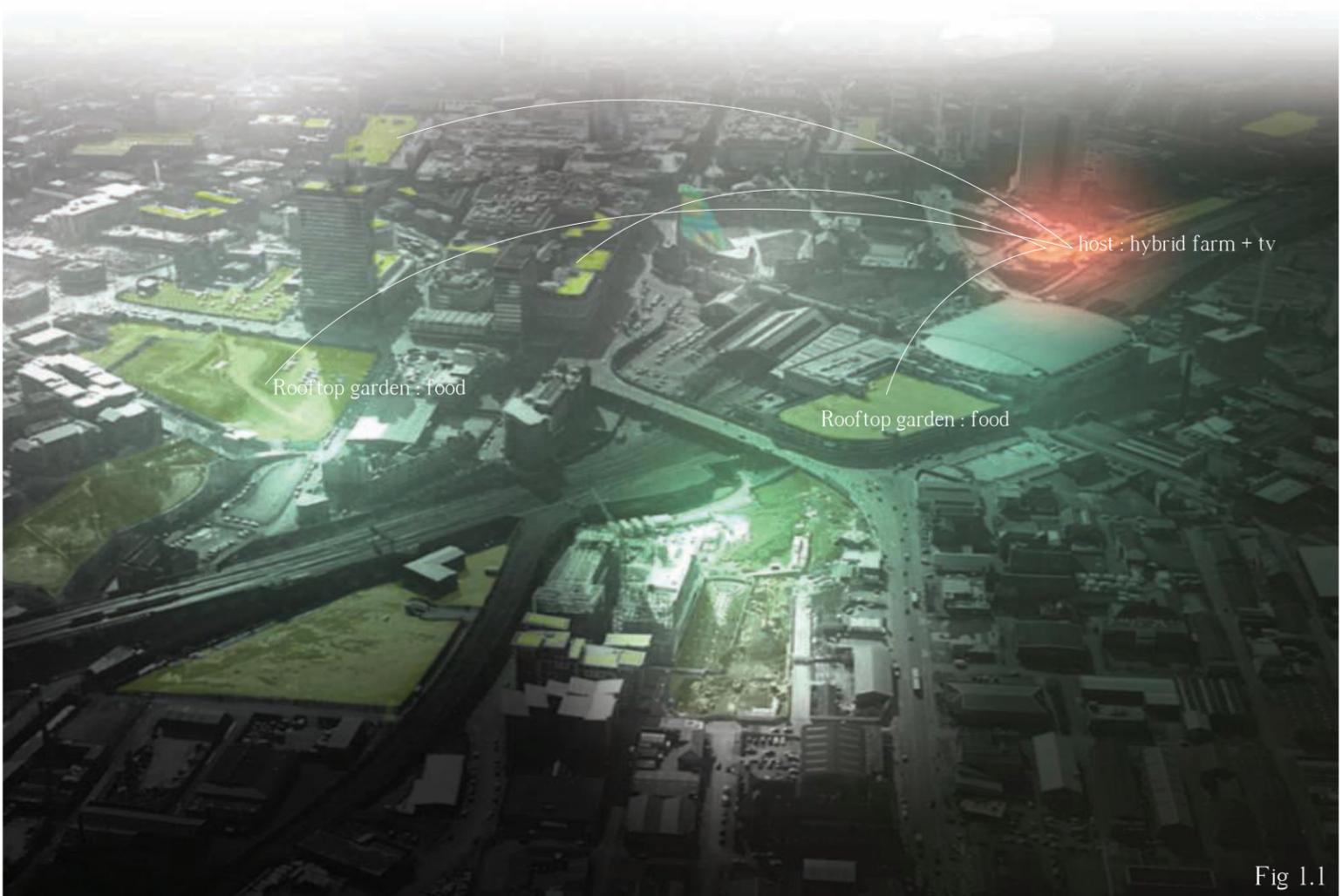


Fig 1.1

### Global Problems

- : Peak Oil
- : Global warming
- : Clean water shortage
- : Lack of Foods safety
- : Poor urban infrastructure

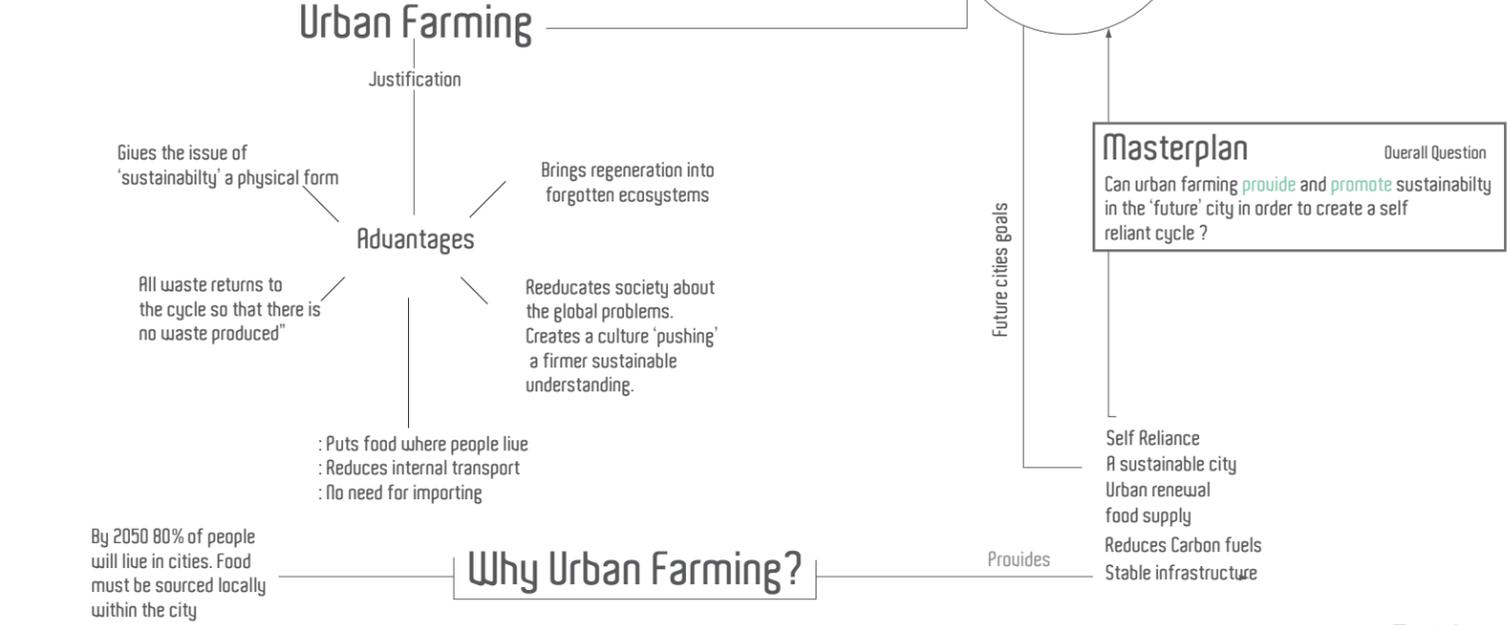
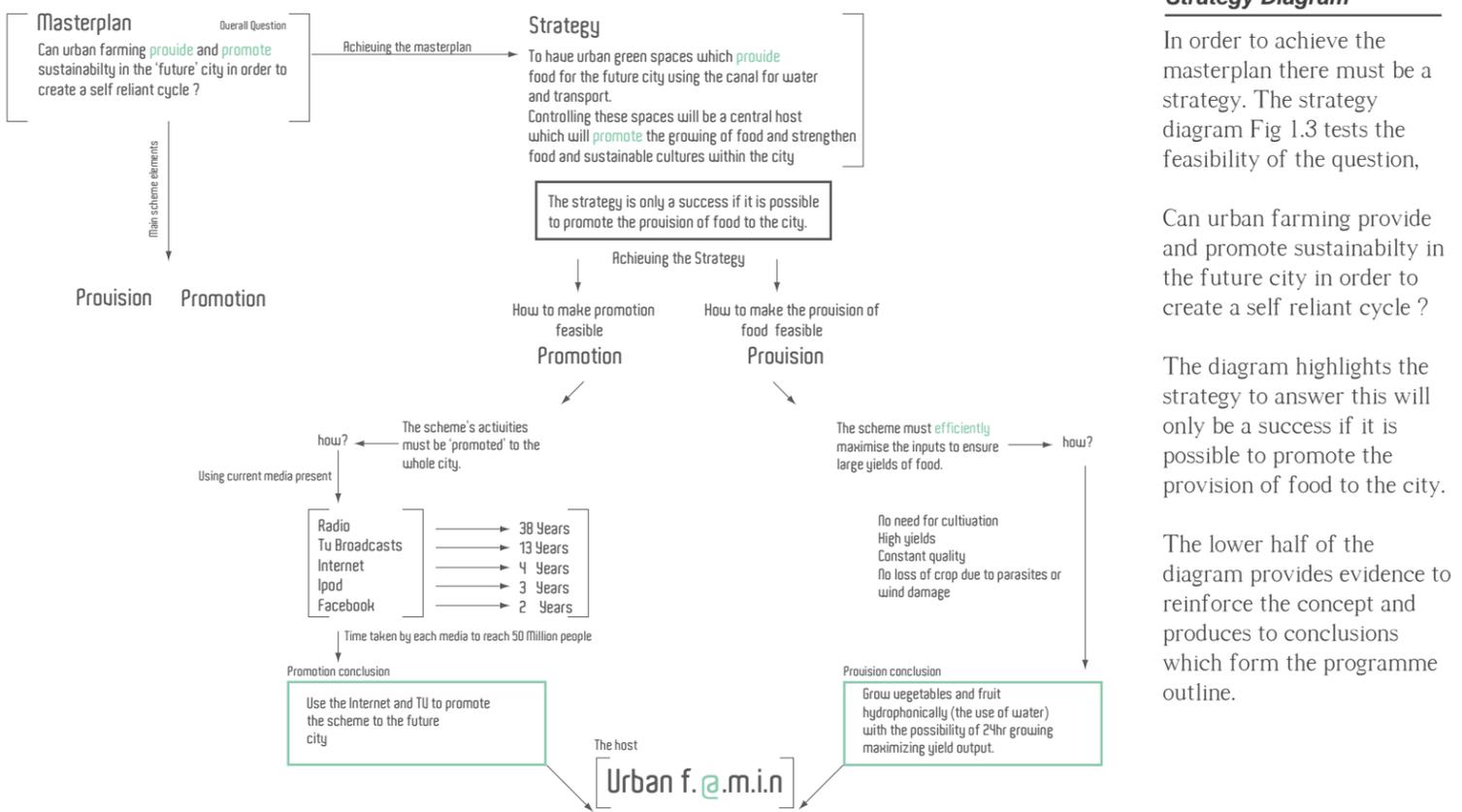


Fig 1.2



### Strategy Diagram

In order to achieve the masterplan there must be a strategy. The strategy diagram Fig 1.3 tests the feasibility of the question,

Can urban farming provide and promote sustainability in the future city in order to create a self reliant cycle ?

The diagram highlights the strategy to answer this will only be a success if it is possible to promote the provision of food to the city.

The lower half of the diagram provides evidence to reinforce the concept and produces to conclusions which form the programme outline.

Fig 1.3

# DESIGN APPROACH

## URBAN FARMING: CONCEPT THINKING



### URBAN F.A.M.I.N FUTURE FARMING.

#### Programme Outline

Vegetables and fruit will be grown hydroponically using water from the canal, which mainly serves as a transport route. The crop produced is then sold back to Manchester reducing the cities reliance on importing foreign goods and can generate an income to sustain the project. The crop is to be used in a restaurant. To reach the widest possible audience a Tv studio, along with other media outputs will be integrated to produce programmes based around food.

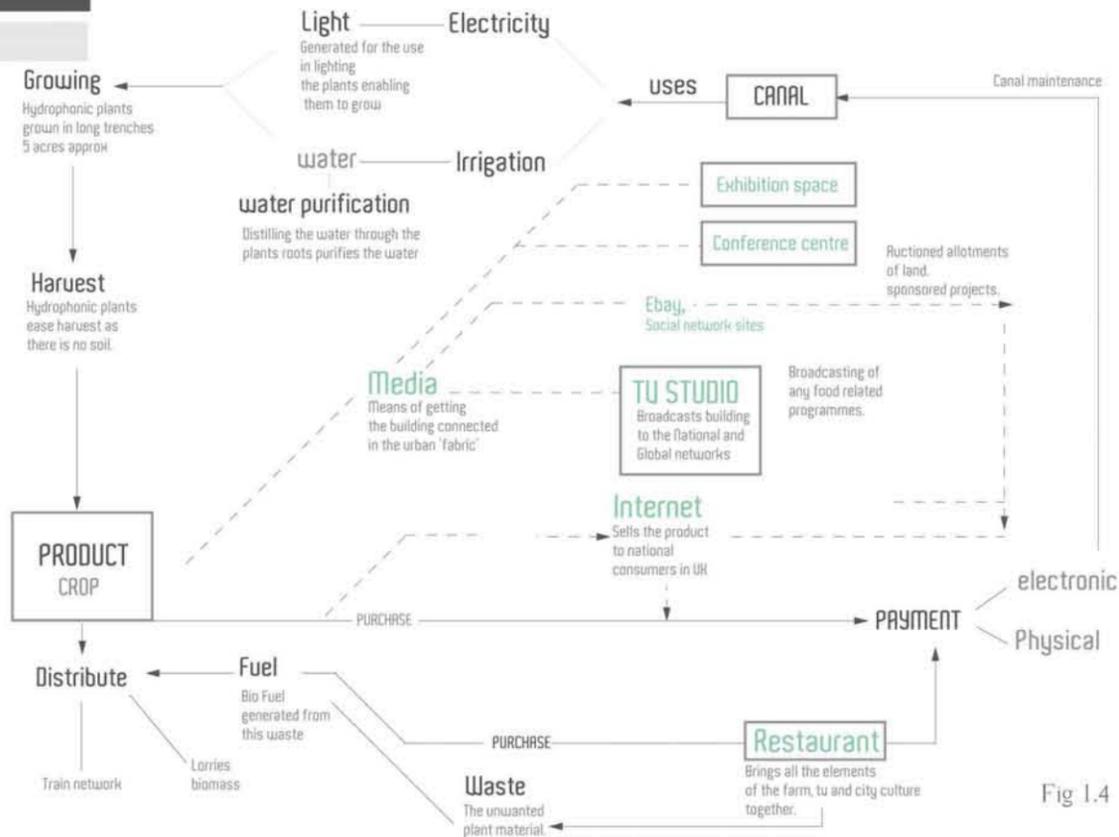


Fig 1.4

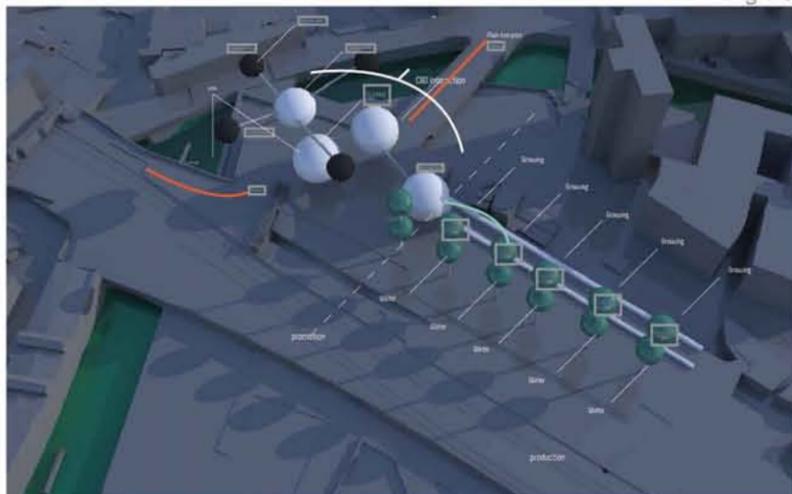


Fig 1.5

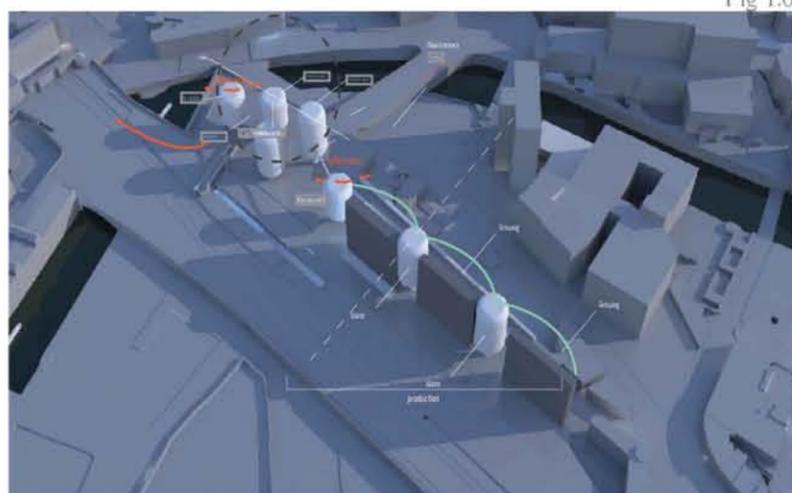


Fig 1.6

#### Programme Form: Mk 1

Referring to the schematic layout diagram and the form constraints an organisation is produced. This form spatialises the programme on site to achieve maximum success in achieving the strategy the organisation will go through more variables and changes in a bid to become effective and optimise the relevant inputs. The crop will be grown by productive structures

#### Programme Form: Mk 2

The form now includes the linear elements which progress through the site. They break out at the top in contrast to the previous forms, as both provide varying functions. The repeated forms stem from the water tank as this is a key element in the design and strategy. Due to their significance within the strategy they play a fundamental role in the direction

that are molded by the main requirements for growth such as solar penetration. Elements which are necessary for promoting the sustainable action are placed at the head of the site, viewed from both Manchester and Salford. They sit on a high plinth which elevates their views allowing panoramic views of the city and the sustaining efforts of the rest of the site. In contrast to the linear efficiency these forms break free from these constraints furthering interaction.

the scheme's form takes, flowing through the scheme evolving further as they reach the head of the site. Each individual programme element is contained within the pods at the head of the site : Tv studio, restaurant exhibition space. Circulation between these elements is now considered with the addition of bridges between each structure.

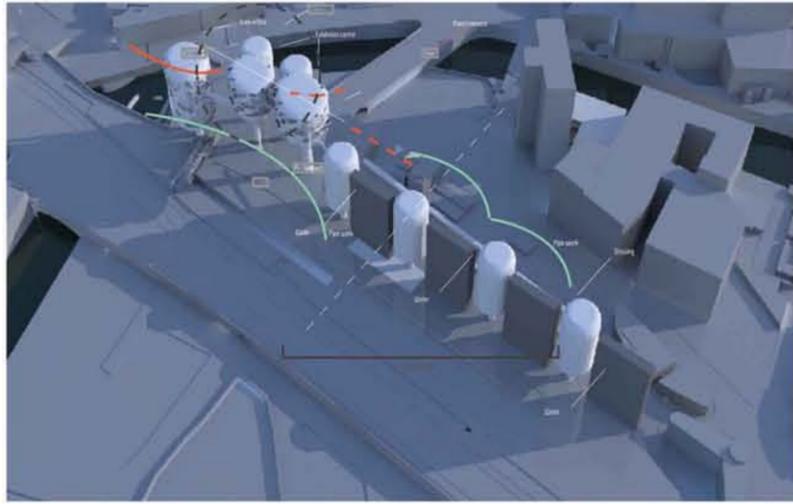


Fig 1.7

#### Programme Form: Mk 3

Returning to the form after the earlier concept layouts reinforces an understanding into the parameters that affect its organisation. From the initial layout the view that the form would have strong linear aspects for crop production provided to be a strong theme.

The interactive element (Tv studio etc) will interact with the growing. The interaction will be visual so that the user

can see all that happens in the scheme. Repetition of certain elements from the farm will help to create a continuity throughout the building and allow the user to become emerged in production. In the facade of the Interactive elements they begin to incorporate and reinforce the idea of the plant cell by reproducing an organic arrangement. This has both form and function, where the function regulates the amount of penetrating light.

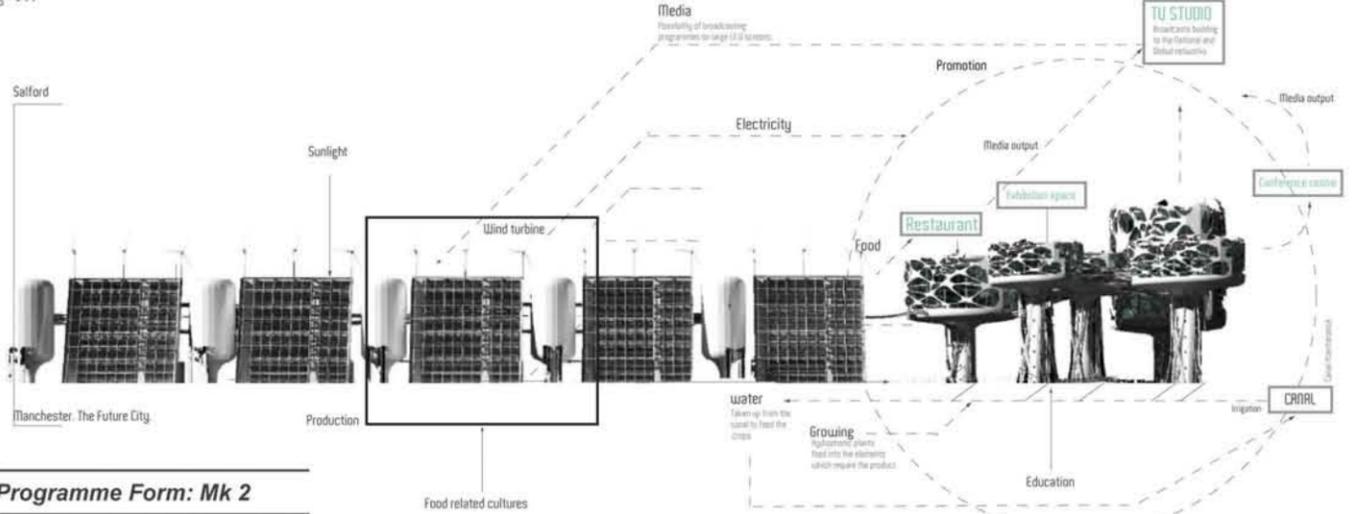


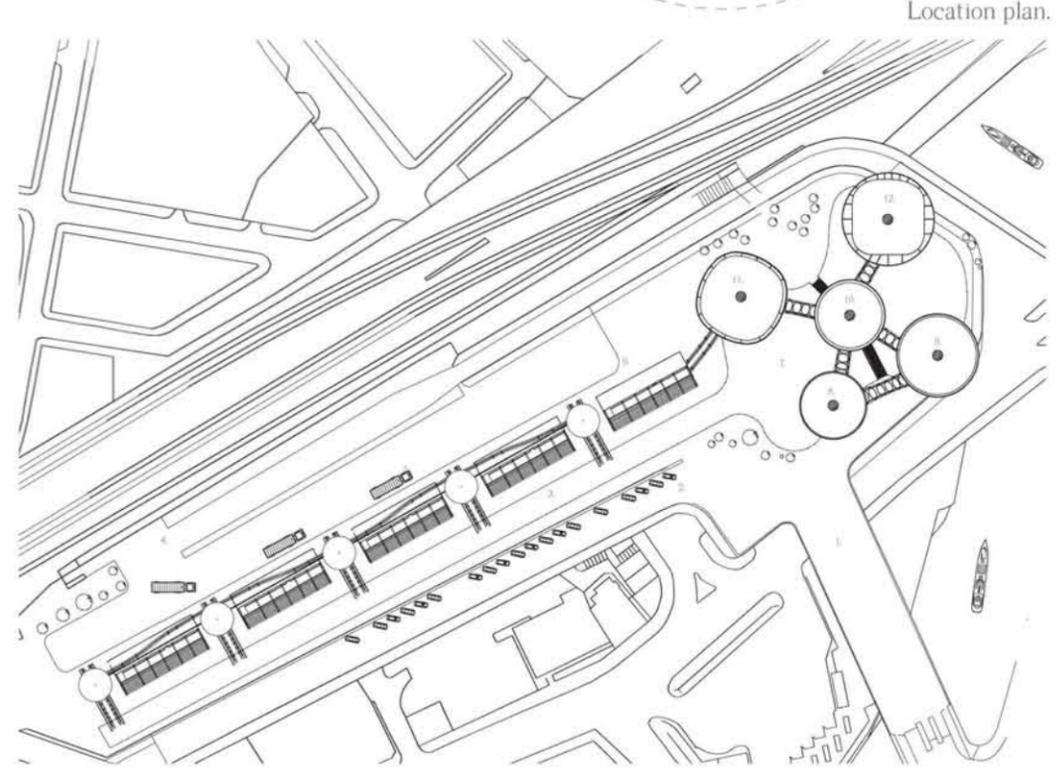
Fig 1.8

#### Programme Form: Mk 2

The diagram further emphasized the need to have the elements organised in a order based upon there relationships in the programme diagram. The form for the project quickly developed, which, seen above, clearly depicts the system in place. There is no end to any of the cycles. The output of one element forms the input to another element and so the cycle continues. Below Fig 1.9, shows a conceptual sketch model for the facade of the towers for the interactive element.



Fig 1.9



- 1. Main Entrance
- 2. Car parking
- 3. Water channel
- 4. Lorry access
- 5. Loading area
- 6. Growing wall
- 7. Water channel
- 8. Exhibition tower
- 9. Lecture / conference tower
- 10. Main office / Entrance
- 11. Restaurant
- 12. Tv Studio

Fig 1.10

# INVENTIVENESS

## URBAN FARMING : TECHNICAL RESOLUTION



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#### Farming process

In order to maximise efficiency and yield the crop are grown in hydroponic tubes. Water containing a nutrient rich solution passes through the tubes at a slight gradient so that the water can run through. The depth of solution is just enough for the roots to be submerged. Water partially submerges the site in order to reduce the need for vast services, and provides an arena for the interactive towers to 'grow' out of. The flowing external services are deliberately exposed as a direct attempt to immerse the user / visitor in a 'beautiful factory' allowing them to feel they have a direct interactive input in the scheme

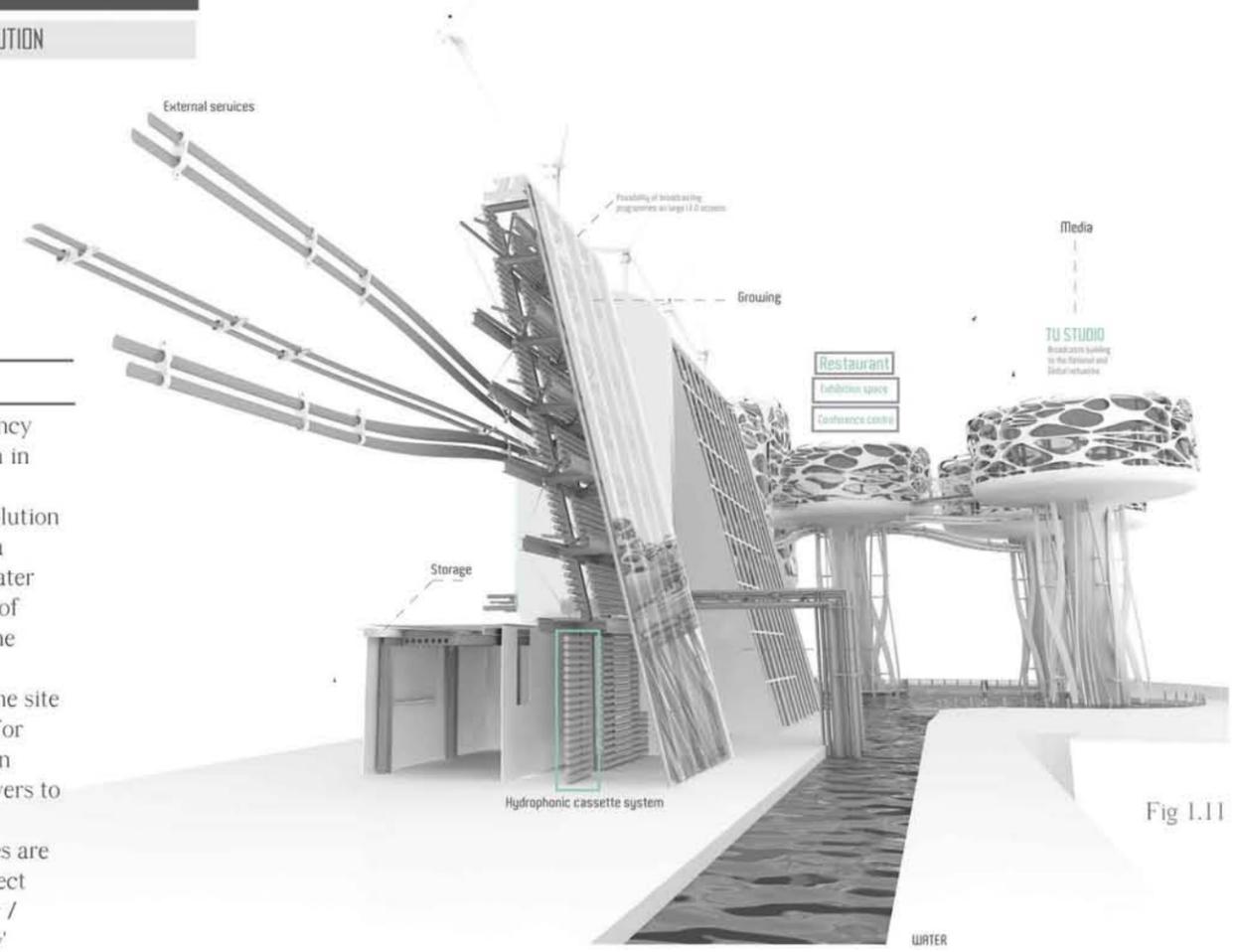


Fig 1.11



#### Contrast

Fig 1.12 The section below is taken through one of the growing walls and reveals the contrast between the two forms. The growing walls are made of very mechanical elements, linear in there arrangement needed solely for efficiency and high yield of crop

In contrast to this large towers become more organic as they must be appropriately iconic visual forms that function as the promotion for the sustainable actions. The give the impression of plants growing up, out of the ground with the organic external services

#### Technical Resolution

The access decks are constructed with a mesh grating which sits on top of a secondary structure. This deck allows the harvester to simply remove the tubes from the wall before placing them in the lift system, installed on the left of all walls. The tubes are 1.2m long and function like a cassette system. When the are removed for storage a new tube is replaced and the cycle continues. Storage is provided to the rear of the growing walls and contains the empty cassette housed until they are required. This growing system, and the internal view from a growing wall can be seen in operation below in Fig 1.14. The larger towers can be seen in the background providing sufficient interaction between farm and user enhancing the promotion.

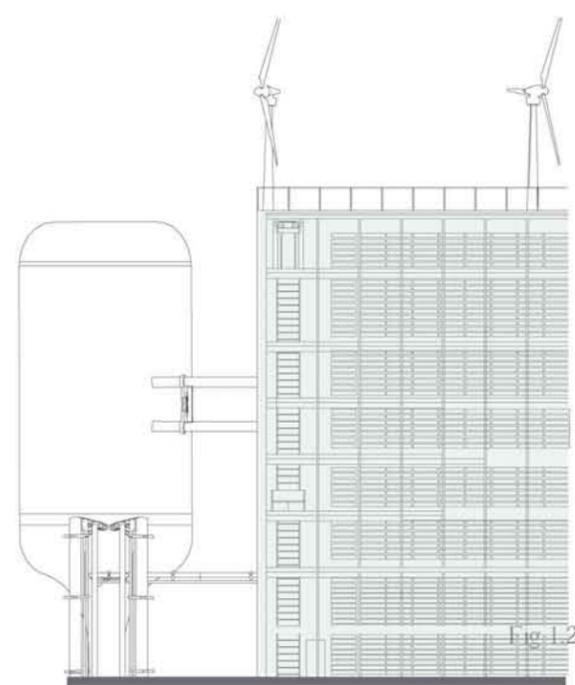
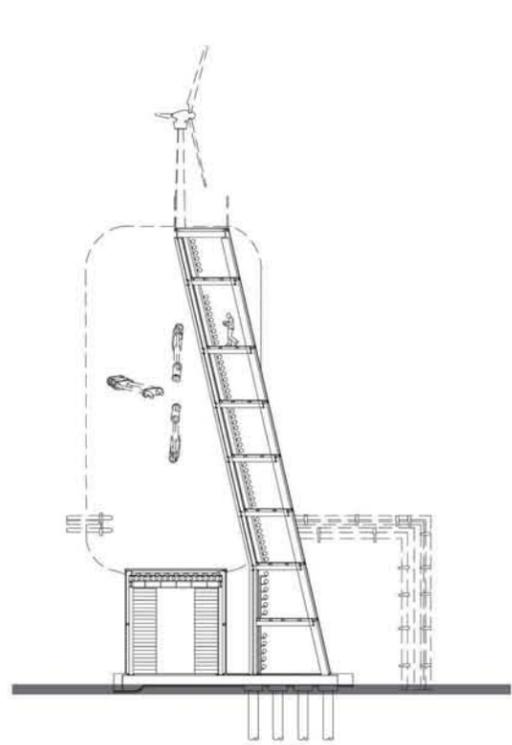


Fig 1.12

Fig 1.13

Fig 1.14



Fig 1.15

# IMPLEMENTATION

## URBAN FARMING : CONCLUSION + CONTEXTUAL INTEGRATION



URBAN F.A.M.I.N  
FUTURE FARMING.

### Conclusion

In conclusion this project sets out to assemble a convincing and sophisticated hybrid urban model that responds to a real, contemporary urban context. This was built upon the platform of rigorous data lead investigations central from the outset of the unit. The project fuses elements of programme as disparate as industrial farming processes and glamorous media production, demonstrating

how the information age and coincident climate change presents an opportunity to evolve traditionally accepted modes of urban living.

The variation in programme across the scheme is articulated in the language of the architecture and its relationships with immediate site context. The functional infrastructure of mechanical, industrial food production becomes digital media communications with appropriately iconic visual forms that function as part of the regenerative role of the scheme, rather than a purely wilful gesture.

The research this year explored the notion of an emergent urbanism that exploits contingency and redundancy within the post industrial landscape, providing

sustainable solutions to urban problems through data driven design processes and integrated computational design methodologies.

Urban F.a.m.in begins to exemplify this approach, and yet theroretically conceptual, it aims to have a high degree of technical resolution.

### Implementation

Certain aspects of this project were driven by the influence of the surrounding context. However this does not mean that its implementation and integration on a global scale is not feasible. Ideally it shall form part of a larger masterplan encompassing countries all over the world.

With the current evolution of media networks the next stage in sustainable communities is further integrating this technology, wether it be through complex hybrid schemes where media meets farming or just simple every day communication.

Bringing all aspects of emergent technology and research together can only help but create self sufficient cities of the future.



Fig 1.16



Fig 1.15

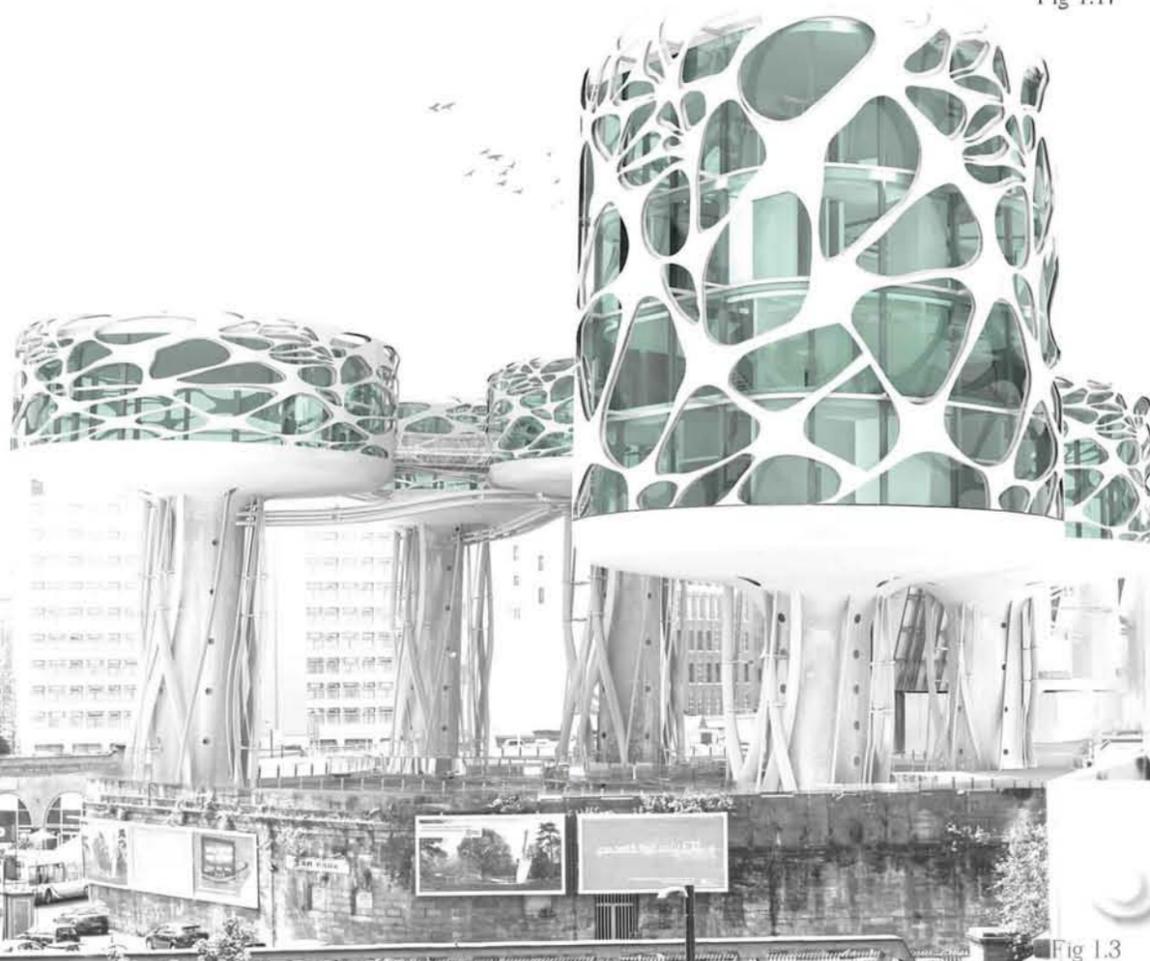


Fig 1.17



Fig 1.19

Fig 1.3